

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

WHATFIX INC.,
Petitioner,

v.

WALKME LTD.,
Patent Owner.

Case IPR2023 - 01379
Patent No. 11,258,732

EXPERT DECLARATION OF IVAN ZATKOVICH
IN SUPPORT OF PATENT OWNER'S RESPONSE FOR
INTER PARTES REVIEW OF
CLAIMS 1-6, 9-16, and 18-21 OF U.S. PATENT NO. 11,258,732

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- a. *Claim 9 – Neither Krishnan nor Radhakrishnan discloses or renders obvious “the automation process is configured to execute a new functionality of the computer program, wherein the new functionality is defined based on the values to the one or more parameters, without relying on a dedicated Application Programming Interface.” 227*
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EXHIBIT LIST

<u>EXHIBIT NO.</u>	<u>DESCRIPTION</u>
Ex2001	Expert Declaration of Ivan Zatkovich in Support of Patent Owner's Response with respect to Claims 1-20 of U.S. Patent No. 11,558,317 (" <u>Zatkovich Decl.</u> ")
Ex2002	<i>Curriculum Vitae</i> of Ivan Zatkovich
Ex2003	Deposition Transcript of Homayoon Beigi, taken on June 26, 2024
Ex2004	Deposition Transcript of Homayoon Beigi, taken on June 27, 2024
Ex2005	Public Comments to S. Symons, "When Chatbots meet RPA bots," https://medium.com/roborana/when-chatbots-meet-rpa-bots-c8b22579f49a , Medium (Oct. 19, 2017) (omitted by Petitioner in Ex1004)
Ex2006	Zatkovich's Overview of Ex2009, "Simple chatbot" .html Code, and Ex2010, Video of "Simple chatbot" .html Code
Ex2007	Khoros Staff, "Different types of chatbots: Rule-based vs. NLP", Expert insights, Aug. 29, 2019 (marked as Beigi Ex. 19)
Ex2008	IBM, "What is a chatbot?", https://web.archive.org/web/20221227051852/https://www.ibm.com/topics/chatbots (archived copy of Dec. 27, 2022).
Ex2009	"Simple chatbot" .html Code, Prepared by Mr. Zatkovich for use in IPRs 2023-01368, 2023-01379, 2024-00065.
Ex2010	Video demonstration of the "Simple chatbot" .html Code (Ex2009)
Ex2011	U.S. Patent No. 10.819,664 [Ex1001 in IPR2023-01368]
Ex2012	[RESERVED]
Ex2013	U.S. Patent No. 11,558,317 [Ex1001 in IPR2024-00065]

I, Ivan Zatkovich, declare as follows:

1. The following is my written Declaration detailing the subject matter and my opinions on issues regarding the validity of Claims 1-6, 9-16, and 18-21 of U.S. Patent No. 11,258,732 (“**the ’732 Patent**”, Ex1001) submitted on behalf of Patent Owner Walkme Ltd. (hereinafter “**Patent Owner**”).

I. Summary of My Declaration and Opinions

2. As I explain in this Declaration, it is my opinion that each of the challenged claims (Claims 1-6, 9-16 and 18-21) of the ’732 Patent are not invalid in view of any of the grounds set forth in the Petition (Paper 2), and the supporting declaration of Dr. Beigi (Ex1003).

II. Background Information

A. Summary of My Professional Background and Qualifications

3. My professional background, qualifications, and experience testifying as an expert are set forth in my *curriculum vitae*, which is marked as Ex2002. I also summarize pertinent aspects of my professional experience below.

B. Materials Reviewed

4. In preparing this Declaration, I have reviewed the ’732 Patent (Ex1001), its prosecution history (Ex1002), the prosecution history of its parent application (U.S. Patent No. 10,819,664, Ex2011 and submitted as Ex 1002 in

IPR2023-01368), as well as each of the references and material cited and discussed therein.

5. I have also reviewed Petitioner's Petition for *Inter Partes* Review of the '732 Patent (Petition for *Inter Partes* Review, Paper 2, IPR2023 - 01379 hereinafter "**Petition**"), the supporting Declarations of Dr. Homayoon Beigi (Ex1003), the Mathijs Mekes (Ex1007), Senne Symons (Ex1008), Wouter Baetens (Ex1010), Ira Allen (Ex1012), and Nathaniel Frank-White (Ex1027), as well as each of the other exhibits submitted with the Petition including:

Exhibit Number	Description
1004	S. Symons, "When Chatbots meet RPA bots," https://medium.com/roborana/when-chatbots-meet-rpa-bots-c8b22579f49a , Medium (Oct. 19, 2017)
1005	Screenshots of S. Symons, "RPA meets chatbot: Automatically generate e-mail signature," https://vimeo.com/238927879 , Vimeo (Oct. 19, 2017)
1006	English Translation of Screenshots of S. Symons, "RPA meets chatbot: Automatically generate e-mail signature," Vimeo (Oct. 19, 2017)
1009	W. Baetens, "When Chatbots meet RPA bots," https://chatbotslife.com/when-chatbots-meet-rpa-bots-c5f71e462e6 , Medium (Oct. 20, 2017)
1011	D. Williams et al., "Using artificial intelligence to optimize the value of robotic process automation," https://www.ibm.com/downloads/cas/KDKAAK29 , IBM White paper (2017)
1013	IT World Canada, "Using artificial intelligence to optimize the value of robotic process automation,"

	https://www.itworldcanada.com/assets/using-artificial-intelligence-to-optimize-the-value-of-robotic-process-automation , IT World Canada (2017)
1014	U.S. Patent No. 7,983,997 to Allen et al.
1016	U.S. Patent No. 10,839,798 to Krishnan <i>et al.</i>
1017	U.S. App. No. 62/581,550
1018	U.S. Patent No. 10,503,627 to Radhakrishnan <i>et al.</i>
1019	U.S. Pub. No. 2018/0107461 to Balasubramanian <i>et al.</i>
1020	U.S. Pub. No. 2018/00-90141 to Periorellis <i>et al.</i>
1026	C. Melendez, "Chatbots and RPA: Digital Heaven," https://www.wovenware.com/blog/2016/10/chatbots-rpa-digital-heaven/ , Wovenware (Oct. 14, 2016)
1028	P. Ferscht et al., "Robotic Automation Emerges as a Threat to Traditional Low-cost Outsourcing," https://www.horsesforsources.com/wpcontent/uploads/2016/06/RS-1210-Robotic-automation-emerges-as-a-threat-060516.pdf , Horses for Sources (2012)
1029	M. Lacity et al., "What Knowledge Workers Stand to Gain from Automation," https://hbr.org/2015/06/what-knowledge-workers-stand-to-gain-from-automation , Harvard Business Review (June 19, 2015)
1030	P. Bornet, "Intelligent automation is about creating synergies between RPA, cognitive, chatbots and AI," https://www.linkedin.com/pulse/from-robotic-process-automation-rpa-artificial-ai-journey-bornet , LinkedIn (Apr. 22, 2017)
1031	C. Le Clair, "The Forrester Wave™: Robotic Process Automation, Q1 2017," Forrester Wave (Feb. 13, 2017)
1032	M. Arya, "A brief history of Chatbots," https://chatbotslife.com/a-brief-history-of-chatbots-d5a8689cf52f , Medium (Mar. 11, 2019)
1033	S. Symons, "RPA meets chatbot: Automatically generate e-mail signature," https://vimeo.com/238927879 , Vimeo (Oct. 19, 2017)
1034	U.S. Pub. No. 2017/0250930 to Ben-Itzhak

6. I have also reviewed other cited art and information cited by Petitioner with regards to the '732 Patent.

7. I also based this Declaration on my knowledge from over thirty years of direct experience in diverse areas of software and computer programming knowledge, such as eCommerce, natural language processing and chat bot interactions.

C. Scope of the Assignment

8. I have been requested by counsel for Patent Owner to study the '732 Patent, including its claims and prosecution history, including the prior art cited and discussed therein, as well as the other material mentioned herein. I have also been requested by counsel for Patent Owner to provide my expert opinion regarding the validity of Claims 1-6, 9-16, and 18-21 of the '732 Patent. My understanding is that this IPR is not challenging Claims 7-8, and 17 of the '732 Patent, and, for purposes of this proceeding, I do not offer an opinion as to the validity of these claims.

9. I anticipate using some of the above-referenced documents and other documents that may be produced during the course of this matter or as a result of my analysis to support my testimony in this matter. Additionally, I may use representations, charts, graphs, photographs, schematics, simulations, and models based upon these documents, or other demonstrative materials.

D. Compensation

10. I am being compensated at my consulting rate of \$525 per hour for my time spent in connection with this case. I am being separately reimbursed for any out-of-pocket expenses. No part of my compensation is dependent upon the outcome of this proceeding or the nature of the opinions that I express.

E. Prior Testimony

11. I have provided declarations and deposition testimony as an expert witness in several U.S. District Court cases and Patent Trial and Appeal Board proceedings. I have listed relevant cases on my CV marked as Ex2002.

F. Legal Standards

12. To render my analysis, I have been informed about the legal standards for patent invalidity. Specifically, I am informed that in an IPR proceeding:

(a) the Petitioner must prove patent invalidity by a “preponderance of the evidence”;

(b) there is no presumption of validity;

(c) claim terms should generally be given their ordinary and customary meaning as would be understood by a person with ordinary skill in the art at the time of the invention (“POSITA”) in the context of the specification, the prosecution history, other claims, and even extrinsic evidence including expert and inventor testimony, dictionaries, and learned

treatises. However, extrinsic evidence is less significant than the intrinsic record; and

(d) that claim terms may be construed differently when a patentee sets out a definition and acts as his or her own lexicographer, and when a patentee disavows the full scope of a claim term either in the specification or during prosecution. 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.

13. As discussed below, I am informed that a patent claim may be invalid as anticipated, either expressly or inherently, over the disclosure of a prior art reference, or as “obvious” in view of the combination of prior art references.

14. I am informed that in order for a claimed element or feature to be “inherent”, it must necessarily be performed in the prior art disclosure. To the extent that the disclosure is capable of being performed in more than one manner, than none of those manners would be inherent based on such disclosure. If an element or feature is only possible or optional in the prior art disclosure, then it is not inherent.

15. I am informed that in considering the issue of obviousness, I should consider what a POSITA would have known as of November 5, 2017, the earliest claimed priority date of the '732 Patent, as well as what such a person would have

reasonably expected to have been able to do in view of that knowledge. My analyses with respect to claim construction and validity based on the art relied upon in the Petition would not be affected if the November 4, 2018 priority date were used instead as the date of the invention.

16. I am informed that in analyzing the issue of obviousness, I should consider and determine:

- (a) the scope and content of the prior art;
- (b) the differences between the prior art and the claims at issue; and
- (c) the level of ordinary skill in the pertinent art.

17. I am informed that in analyzing the issue of obviousness, I also should consider secondary considerations, if they exist, as discussed below in Par. 21.

18. I am further informed that any of the following may provide a reason for combining elements known in the prior art:

- (a) a need or problem known in the field at the time of invention and addressed by the patent;
- (b) a design need or market pressure to solve a problem;
- (c) the use of known techniques to improve similar products or methods in the same way;

(d) a simple substitution of one known element for another that would provide predictable results; or

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

19. I also am informed that claims may be invalid if they are directed to obvious design choices. Specifically, I am informed that a patent claim that simply arranges old elements, with each element performing the same function that it had been known to perform, is not patentable. The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.

20. I am informed that when there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp with a reasonable expectation of success. I am informed that if this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense. I am informed that in that instance the fact that the combination of elements was obvious to try may show that the combination was obvious.

21. I also am informed that certain “secondary considerations” of non-obviousness should be considered, to the extent that they exist. It is my understanding that such secondary considerations include:

- (a) commercial success;
- (b) long felt but unsolved needs;
- (c) failure of others;
- (d) industry skepticism;
- (e) praise by others; and
- (f) copying.

22. I am informed that there must be some connection or nexus between the secondary considerations and the claimed invention.

G. My Professional Experience and Qualifications

23. I am currently Principal Consultant of eComp Consultants, a position I have held for over twenty years.

24. eComp Consultants provides professional consulting services relating to computer and technical issues in a wide range of industries including Business and Finance, Telecommunications, and Internet eCommerce. Such consulting services include working with clients on specific information technology projects,

process improvement, project management, and other technology issues as well as providing professional expert witness services.

25. I am an eBusiness Director and Software System Designer specializing in eCommerce and Financial transaction systems. I have over thirty years of direct experience in a diverse set of areas, including debit card and other financial transaction instrument systems including point of sale systems, payment gateways, Merchant Acquirers, payment processing, and settlement systems.

26. At eComp Consultants, I have been qualified as a technical expert in over fifty matters and, with respect to credit card and debit card systems, in over fifteen matters.

27. I received a bachelor's degree in Computer Science, with a minor in Electrical Engineering Digital Circuit Design, from the University of Pittsburgh in 1980. I completed a master's thesis in Computer Networks, results of which are published in Byte Magazine.

28. From 1980 to 1987, I was a software engineer at Digital Equipment Corporation where I led the development of manufacturing automation and control software. I developed complex device drivers, database storage and retrieval systems, and electronic transaction processing using electronic data interchange (EDI) standards.

29. From 1987 to 1996, I was an Architect and Manager for GTE/Verizon Telecom where I integrated call centers for billing and customer service including a third-party call assistance service. I also developed billing applications and systems for reconciliation of inter-exchange carrier transactions, including implementing CDC file security and data verification methods.

30. From 1996 to 1999, I was Director of Networks and Customer Support at Utility Partners Inc., where I designed and managed a system to automatically create and distribute service orders for mobile field units for various utility companies. I also provided live client support for various applications.

31. From 1999 to 2002, I was an eBusiness Manager at Tanning Technology & IMR Global. There, I implemented a system to cross-utilize call center agents and initiated an Interactive Voice Response chat room and Email response for GEICO. I also developed various financial applications for companies such as ETrade, Smith Barney, and Citicorp.

32. My full work experience, education, and prior testimony history is included in Ex2002.

III. Grounds

33. This IPR raises the following grounds with respect to the '732 Patent:

Challenged Claims	35 U.S.C. § (Post AIA)	Basis/Reference
1-4, 9-14, 18, 19	103	Symons Blog (Ex1004) ¹ , Symons Video (Ex1005, Ex1006, Ex1007, Ex1033), Williams (Ex1011)
6, 16, 21	103	Symons Blog (Ex1004), Symons Video (Ex1005, Ex1006, Ex1007, Ex1033), Williams (Ex1011), Ben-Itzhak (Ex1034)
1-5, 9-15, 18-20	103	Allen (Ex1014)
6, 16, 21	103	Allen (Ex1014), Ben-Itzhak (Ex1034)
1-5, 9-15, 18-20	103	Krishnan (Ex1016, Ex1017), Radhakrishnan (Ex1018)

(Paper 10, Institution Decision, at 9-10).

34. I note that Petitioner is not challenging Claims 7, 8 and 17 of the '732 Patent in any of the Grounds. Accordingly, I am not addressing them in this Declaration.

IV. Person Of Ordinary Skill In The Art (POSITA)

35. I have been advised that in evaluating obviousness of the claims of the '732 Patent, I should consider the level of ordinary skill a Person of Ordinary Skill

¹ While I understand that Petitioner and Dr. Beigi refer to this blog as the “Symons” article, in my opinion, a POSITA as of November 5, 2017 would have considered this short-form and self-referential post more similar to a blog than an article, so I refer to it as the “Symons Blog”. I similarly refer to Baetens’ post on Medium (Ex1009) as the “Baetens Blog”.

in the Art (“POSITA”) had as of the earliest claimed priority date of the Patent. Thus, in my analysis, I have considered the level of skill of the POSITA as of November 5, 2017.

36. I am informed that a POSITA is a hypothetical person who is presumed to have known the relevant art at the relevant time. I understand, like Dr. Beigi, factors that may be considered in determining the level of ordinary skill in the art may include: (1) the education level of the inventors; (2) the type of problems encountered in the art; (3) prior art solutions to those problems; (4) the rapidity with which innovations are made; (5) sophistication of the technology; and (6) educational level of active workers in the field. (Ex1003, ¶45). I further am informed in a given case, every factor may not be present, and one or more factors may predominate.

37. In this regard, I understand that Petitioner and Dr. Beigi have asserted that a POSITA would have a bachelor's degree in engineering or computer science and two years of experience working on NLP or automation processes, or, alternatively, have five to six years of experience working on NLP or automation processes. (Paper 2, Petition, at 5-6; Ex1003, ¶ 46).

38. I understand that in the Institution Decision the PTAB adopted “Petitioner’s proposal” as “consistent with the level of ordinary skill in the art

reflected by the prior art of record” (Paper 10, at p. 12). I do not agree with this assessment, which is inconsistent with at least factors (4) the rapidity with which innovations are made, (5) sophistication of the technology, and (6) educational level of active workers in the field.

39. The problem being addressed by the ’732 Patent as set forth in the disclosure includes, among other things, “provid[ing] for a user-friendly manner of defining functionality of chat bots” (Ex1001, 4:59-61) and, while less important in the context of the claims of the ’732 Patent, to “enable defining automation processes in a manner that enables them to be implemented even if changes are performed to the underlying platform.” (*Id.*, 5:49-52). With respect to the claims of the ’732 Patent in particular, the claimed invention in the ’732 Patent is directed to the method of defining a conversation used to invoke an automation process as illustrated, for example, by the method shown in FIG. 3. At this deposition, Dr. Beigi agreed that claim 1 of the ’732 Patent was addressing the problem of how to define a conversation to invoke an automated process. (Ex2003, 280:23-281:10; *see also* Ex1001, 4:59-67 (discussing “[o]ne technical problem” “in particular, defining automation processes to be invoked by chat bots”)).

40. Dr. Beigi improperly elevates the level of experience in the field while ignoring the evolving nature of the technology. Symons characterizes “Robotics

Process Automation (RPA)” and “Chatbots” as “newer technologies” (Ex1004, at 1). This idea was no more than “a few months” old. (Ex1009, 2). As Dr. Beigi noted during his deposition, Symons appeared to consider the combination of the two to be “something of interest” in the field in October 2017 (a few weeks before the priority date of the invention). (Ex2003, 151:17-152:13). In my opinion, the message of Symons and Baetens in their respective writings is that their combination was so new and purportedly innovative they were only providing a “showcase”/“demo” with no details which had to be kept secret at the time. (Ex1004, 2; Ex1009, 2). Thus, the level of sophistication for combining chatbots with other functions as of November 5, 2017 was relatively low. Indeed, when others that were active in the field asked for details, none were provided. (Ex2005). As Symons and Baetens illustrate, in November 2017, at the time of the invention, combining RPA processes with chatbots was at least noteworthy, and the field was not well developed, and was evolving rapidly. This is consistent with my own experience and understanding of the field at the time. Accordingly, in my opinion, while a POSITA may have had experience in a computer field, a POSITA would have had limited experience working with both technologies.

41. As a key prior art that Dr. Beigi relies upon, he should have considered “Symons” in his analysis. (see Ex1003, ¶¶ 58-145). As Mr. Symons, the author of

the Medium blog being relied upon (Ex1004), and creator of the video being relied upon (Ex1033), indicates, he had merely received his bachelor's degree in applied informatics in 2017, and started working as a robotic process automation developer and business analysis at RoboRana, in October 2017, i.e., no earlier than 19 days before the blog in question was published. (Ex1008, ¶¶ 2-4). Both Dr. Beigi and I agree that Mr. Symons is an active worker in the field that is relevant to the patent in suit. (See Ex2003, 112:21-24).

42. Accordingly, in my opinion, a POSITA as of November 5, 2017 would have had some education (either formal or informal) with computer science and some work experience (e.g., 1-2 years) with chatbots using NLP or automation processes. (Paper 2, Petition, at 5-6; Ex1003, ¶ 46).

43. To the extent that the Board adopts a different level of skill, I note that it does not affect the conclusions of the analysis expressed herein regarding whether the prior art cited by Dr. Beigi discloses or renders obvious the claims of the '732 Patent.

V. Overview of U.S. Patent No. 11,258,732 B2

A. Disclosure of the '732 Patent

44. U.S. Patent No. 11,258,732 B2 (Ex1001, “the '732 Patent”), entitled “Automation Process Definition for A Natural Language Interface”, was filed as U.S. Serial No. 17/026,305 (“the '305 Application”) on September 21, 2020, and claims

priority from U.S. Provisional Application 62/581,714, filed on November 5, 2017, via PCT/IL2018/051168, filed on November 4, 2018 and U.S. Serial No. 16/358,467 filed on March 19, 2019 (now U.S. Patent No. 10,819,664 B2, the '664 Patent, Ex2011).

45. For purposes of this proceeding, Petitioner and Dr. Beigi have agreed to use the November 5, 2017 priority date of the provisional application as the date of the invention. (Paper 2, Petition, at 5; Ex1003, ¶ 22). My analyses with respect to claim construction and validity based on the art relied upon in the Petition would not be affected if the November 4, 2018 priority date were used instead as the date of the invention.

1. Claims

46. The '732 Patent contains 21 claims, of which Claims 1, 11 and 18 are in independent form. (Ex1001).

47. Claim 1, which is representative of Claims 11 and 18, reads as follows:

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.

(Ex1001, Claim 1, 22:15-39 (bracketed and bold element lettering has been supplied to conform with the Institution Decision, Paper 10, at 8, but the claims original tabulation has been maintained; additional bold emphasis added); *see also* Claim 11, 23:23-49; Claim 18, 24:23-50).

48. The '732 Patent also includes Dependent Claims 2-10 (dependent on Claim 1) (Ex1001, 22:40-23:22), Dependent Claims 12-17 (dependent on Claim 11) (Ex1001, 23:50-24:22), and Dependent Claims 19-21 (dependent on Claim 18) (*Id.*,

24:51-25:7). It is my understanding that Claims 7, 8, and 17 are not being challenged by Dr. Beigi or the petitioner. (Institution Decision, Paper 10, at 2).

49. Dependent Claim 2 (dependent on Claim 1) (Ex1001, 22:40-45), which is representative of Claims 12 (dependent on Claim 11) (*Id.*, 23:50-56) and 19 (dependent on Claim 18) (*Id.*, 24:51-57), provides:

. . . wherein said defining comprises determining a conversation flow, wherein the conversation flow defines an order between conversation elements, wherein the conversation elements comprise at least a question element and an action element, wherein the action element is associated with automation process.

50. Dependent Claim 3 (dependent on Claim 2) (Ex1001, 22:46-48), which is representative of Claim 13 (dependent on Claim 12) (*Id.*, 23:57-59), provides:

. . . wherein the conversation elements comprise at least one of: a message element and a condition element.

51. Dependent Claim 4 (dependent on claim 2) (Ex1001, 22:49-54), which is representative of Claim 14 (dependent on claim 12) (*Id.*, 23:60-65), provides:

. . . wherein the conversation elements comprise a second action element associated with a second automation process, whereby the natural language interface is configured to selectively invoke either the automation process or the second automation process based on interaction with the user.

52. Dependent Claim 5 (dependent on Claim 1) (Ex1001, 22:55-64), which is representative of Claims 15 (dependent on Claim 11) (*Id.*, 23:66-24:8) and 20 (dependent on Claim 18) (*Id.*, 24:58-67), provides:

. . . wherein the natural language interface is associated with a plurality of conversations, wherein the plurality of conversations comprise the conversation; wherein each of the plurality of conversations is associated with one or more terms, wherein the natural language interface is configured to select a conversation from the plurality of conversations based on a user intent matching the one or more terms, wherein the user intent is determined based on interaction of the user with the natural language interface.

53. Dependent Claim 6 (dependent on Claim 1) (Ex1001, 22:65-23:3), which is representative of Claim 16 (dependent on Claim 11) (Ex1001, 22:9-14), provides:

... 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.

54. Dependent Claim 9 (dependent on Claim 1) (Ex1001, 23:14-19), provides:

... wherein the automation process is configured to execute a new functionality of the computer program, wherein the new functionality is defined based on the values to the one or more parameters, without relying on a dedicated Application Programming Interface (API) of the computer program.

55. Dependent Claim 10 (dependent on Claim 1) (Ex1001, 24:20-22), provides:

... wherein the functionality of the computer program comprises inputting data to a field in the displayed user interface.

56. A complete listing of the claims at issue in this IPR is included as Appendix A to this Declaration.

2. Technical Problem/Solution

57. The '732 Patent identifies several technical problems that it seeks to address via the claimed invention, including “provid[ing] for a user-friendly manner of defining functionality of chat bots” (Ex1001, 4:59-61). In this regard, the '732 Patent seeks “to enable defining the chat bots without the need of using dedicated APIs, programming languages, or the like”, and in embodiments so that “non-programmers may be able to define the automation that are invoked by the chat bots.” (*Id.*, 5:29-33). The '732 Patent also seeks to overcome difficulties in “[i]ntegration of a new system into an organization”, which present challenges

associating with “migrating large amounts of employees to new platforms” and “train[ing]” uses on such new platforms (*Id.*, 5:38-41).

58. The '732 Patent also recognizes as “[a]nother technical problem” the challenge to “enable defining automation processes in a manner that enables them to be implemented even if changes are performed to the underlying platform.” (*Id.*, 5:49-52). This later technical challenge can arise, for example, when there are “layout modifications of the front-end of the program or website” which can result in difficulties in identifying the correct elements of such programs or website to be populated. (*Id.*, 5:54-55).

59. The '732 Patent identifies that “[o]ne technical solution provided by the disclosed subject matter may be to use a natural language interface to receive input from the user, and based thereon, select an automation process to be executed” “in a manner that manipulates the GUI [graphical user interface] of the target system, in a similar manner to the manner in which the user operates.” (Ex1001, 5:62-6:1).

60. The '732 Patent also identifies as part of one of its technical solutions, “[d]efining the automation process based on performing actions in the GUI [to] enable the automation process to perform any functionality that the user can perform, without relying on dedicated APIs and without requiring any line of code.” (Ex1001, 6:3-7). The '732 Patent provides examples of “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.” (*Id.*, 6:7-10). In this context, in my opinion, a POSITA as of November 5, 2017 would understand that the “defining” is being used as the operation of a user in an editor setting out the automation process that will be performed.

61. The ’732 Patent also identifies as part of one its technical solutions, “the chat bot may be implemented on a different system than the target system itself, such as a third-party messaging service. As a result, it may be desired to enable the third-party messaging service to invoke the automation process in a simple manner and without relying on coding or on dedicated APIs.” (Ex1001, 6:26-32). An example of such implementation includes using a link where “the target system may be opened and the automation process may be executed.” (*Id.*, 6:39-40). When “the chat bot ... collect[s] information to be used as part of the automation process, such as value to be inputted in input fields, selections to be made in the GUI of the target system, or the like...” (*Id.*, 6:41-44). Further, “some steps may be associated with performing an action on a GUI element” (*Id.*, 7:9-11).

3. The Claimed Invention

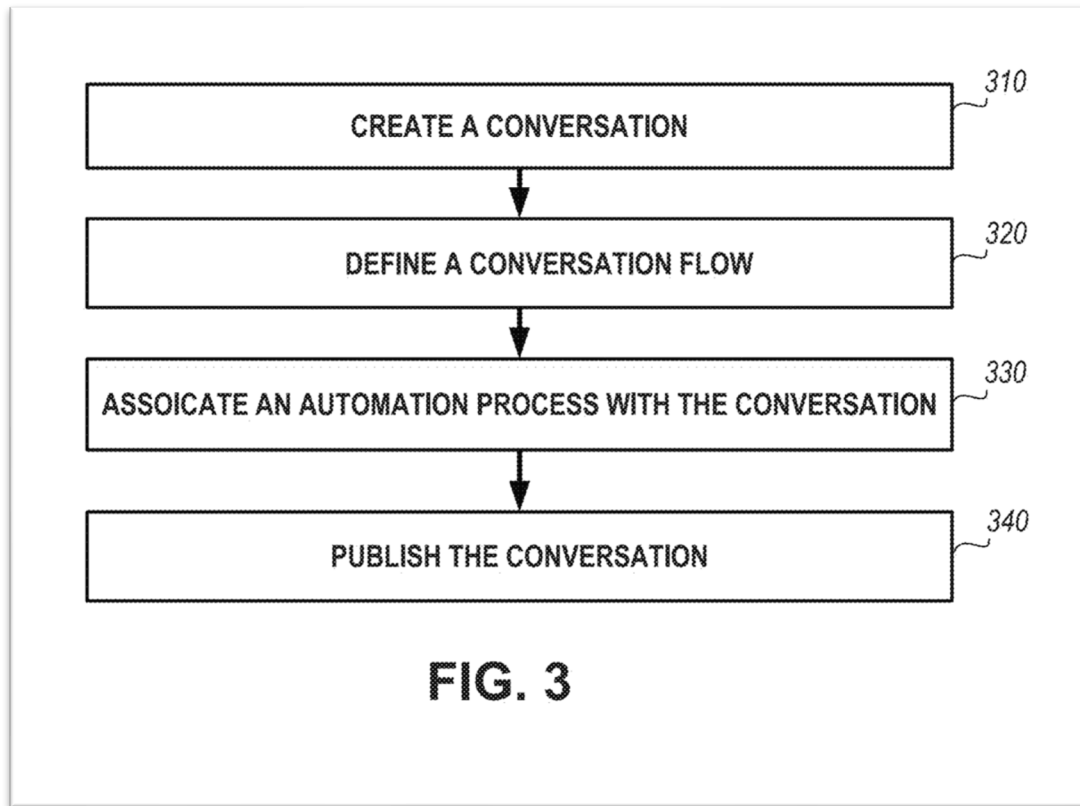
62. To address these and other problems, the claimed invention in the ’732 Patent provides for “defining an automation process” as well as “defining a

conversation ... configured to obtain ... parameters associated with the automation process.” (Ex1001, Claim 1, 22:15-23; Claim 11, 23:23-33; Claim 18, 24:23-34).

The claimed process further provides that, after the conversation is defined to obtain the parameters that will be needed to implement an automation process, that conversation is “associate[ed] with the automation process” which “depend[s] on the one or more parameters” and then “publish[ed] to be accessible to a user via [a] natural language interface”. (*Id.*, Claim 1, 22:24-39; Claim 11, 23:34-49; Claim 18, 24:35-50).

63. The specification provides the flowchart of FIG. 3 which corresponds to the claimed method, as discussed at Ex1001, 14:8-30, including,

- Step 320 (“define a conversation flow”),
- Step 330 (“ass[oci]ate an automation process with the conversion”), and
- Step 340 (“publish the conversation”):



(Ex1001, FIG. 3 of the '732 Patent).

64. Following the method described by FIG. 3, the claims of the '732 Patent are generally broken down into three separate processes associated with the “conversation”:

- **[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 of one or more parameters associated with the automation process” (Ex1001, Claim 1, 22:19-23; Claim 11, 23:29-33; Claim 18, 24:30-34; Step 320);

- **[b] & [c]: “associating the conversation with the automation process”**, wherein the automation process “is a parameterized automation process depending on the one or more parameters” and “utilize[s] 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” (*Id.*, Claim 1, 22:24-31; Claim 11, 23:34-41; Claim 18, 24:35-42; Step 330); and
- **[d] & [e] “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” and “the parameterized automation process is invoked automatically by the natural language interface and using [the] values provided by the user to the natural language interface for [the] parameters” (*Id.*, Claim 1, 22:32-39; Claim 11, 23:42-49; Claim 18, 24:43-50; Step 340).

65. The claim also calls out a variety of separate components that are required to interact in a specific way to address the stated technical problems, including:

- **“a natural language interface”** to interact with the “user” using the defined and associated “conversation” after it is “published”,

- **“a computer program”** corresponding to the “target system” discussed above, with its own “displayed user interface”, and
- a **“parameterized automation process”** to be automatically invoked by the “natural language interface” which “simulate[s]...[user] interactions with the displayed user interface of the computer program and execute[s] a functionality of the computer program.” (Ex1001, 22:27-29).

66. Although not expressly called out in the claims, the '732 Patent also teaches using an editor 110 to define, associate, and publish the conversation, as discussed with respect to FIG. 3 (Ex1001, 14:8-30; *see also* FIGs. 5A-5D).

67. At a high level, in the context of the claims, this process includes using three separate systems to perform the steps of defining the conversation (e.g., with the editor 110) to be implemented in a natural language interface (e.g., with a chat bot) (Step 320), then associating that conversation with a parameterized automation process to be implemented by the computer program (e.g., the target system) through its GUI (Step 330), and then publishing the conversation to be accessible by the “natural language interface”, e.g., of the chat bot (Step 340).

68. In my opinion, both because different elements are claimed and because of the context provided by the specification, a POSITA as of November 5, 2017 would understand that the “natural language interface”, because it implements

interactions in accordance with conversations after it is “published” to be accessible by such an interface, is generated by different software than the “the computer program” and the associated “displayed user interface”, which correspond to a “target system” and its GUI (Ex1001, 5:1-13), and are used in the execution of an automation process.

69. Similarly, while the claim does not expressly call out the software that implements the three steps outlined above, the ’732 Patent describes an “editor” as an example of software that can implement these “defining”, “associating” and “publishing” steps. (*See, e.g.*, Ex1001, FIGs. 5A, 5B).

70. Significantly, because there is a “publishing” function, in my opinion, a POSITA as of November 5, 2017 would understand that the claimed process is being performed using software that is different than both the “natural language interface” under which the conversation is accessible once published, and is also different than the “the computer program” (or target system) or the computer program’s “displayed user interface”.

a. Step 320: Define a Conversation Flow (Element [a])

71. Element [a] provides “defining a conversation to be implemented by a natural language interface”. The conversation, once defined, associated with an automation process, and published, is “configured to be implemented by a natural

language interface” and “obtain ... values of parameters associated with a parameterized automation process” which is to be invoked following an interaction with the user using the natural language interface. (Ex1001, Claim 1, 22:19-23; Claim 11, 23:29-33; Claim 18, 24:30-34; Step 320).

72. Dependent claims 2, 12, and 19 further provide that defining the conversation includes “determining a conversation flow,” that “defines an order between conversation elements”. (Ex1001, Claim 2, 22:40-45; Claim 12, 23:50-56; Claim 19, 24:51-57). The “conversation elements” of that conversation must include “at least a question element and an action element . . . associated with automation process.” (*Id.*). Dependent claims 3 and 13 further modify claims 2 and 12, respectively, by requiring that the conversation includes a “message element” and a “condition element.” (*Id.*, Claim 3, 22:46-48; Claim 13, 23:57-59). Dependent claims 4 and 14 further modify claims 2 and 12, respectively by requiring that the defined conversation include at least two “action element[s]” which may be “selectively invoke[d]” by the natural language interface. (*Id.*, Claim 4, 22:49-54; Claim 14, 23:60-65).

73. Consistent with element [a] of representative claim 1, and representative claim 2, in regards to this process, the ’732 Patent explains “[o]n Step 320, a conversation flow **may be defined**. The conversation flow 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.” (Ex1001, 14:8-14 (emphasis added)).

74. In my opinion, a POSITA as of November 5, 2017 would understand that in the context of the '732 Patent the “defining” process is intended to address the “technical problem” of: “provid[ing] a user-friendly manner of defining functionality of chat bots” (as discussed above). (Ex1001, 4:60-61).

75. The '732 Patent explains the “natural language interface” which may be implemented by, e.g., a “chat bot”, is designed to “simplif[y] the end-user experience by collecting data from him”, which is separate from, and configured to execute, “a predefined automation flow on the target system”, referred to as “the computer program” for purposes of the claims, and can be “a website, web-based system, a native mobile application ... or the like.” In relevant embodiments, “the target system ... ha[s] a user interface, such as a Graphical User Interface (GUI), that ... activate[s] the functionalities of the target system.” (Ex1001, 5:1-13). Thus, a POSITA as of November 5, 2017 would understand the claims to be directed to the “embodiment” where “the chat bot [is] implemented on a different system than the target system [the computer program] itself” (*Id.*, 6:26-28).

76. In claimed embodiments like representative claim 5, the “natural language interface” is “associated with”, and “configured to select a conversation from” “a plurality of conversations”, each “associated with one or more terms” or keywords used to match the “user intent” during an “interaction of the user with the natural language interface.” (Ex1001, 22:55-64; 2:17-25, 3:9-18, 4:4-12). In this regard, as discussed with respect to the “conversation details editor 540” shown in FIG. 5B below, “in some exemplary embodiments, the user’s intent may be extracted from her input, that is provided in natural language. Matching the terms, directly or indirectly, to the terms in Keywords Field 546 may indicate an intent of the user, which may be used to select Conversation 420 c for implementation. In the illustrated example, the terms are ‘new’, ‘employee’ and ‘new employee’ (546 a, 546 b, 546 c).” (*Id.*, 14:44-51).

77. Consistent with the technical challenges identified with respect to providing “a user-friendly manner of defining functionality of chat bots” (as discussed above) (Ex1001, 4:60-61), the ’732 Patent explains that “[a] novice user may **define** in a simple manner the parameters of the conversation that the chat bot implements, and the automation process that would be executed based thereon. Using this seemingly simple technique[], a fast and efficient manner of providing chat bot functionalities is enabled.” (*Id.*, 6:20-25 (emphasis added)).

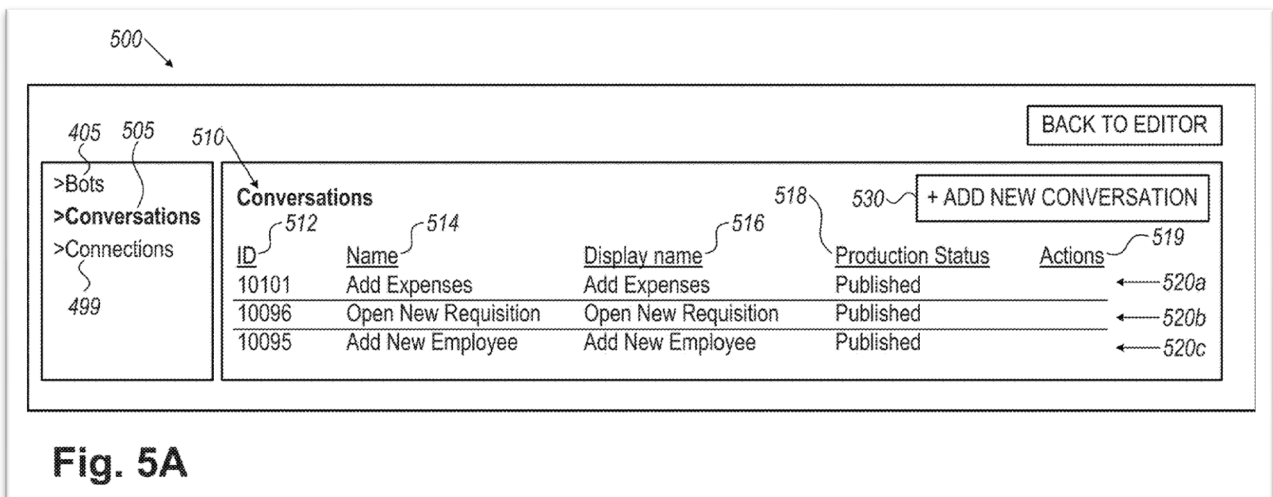
78. Further, in relevant embodiments, “a chat bot service may be associated with different conversation flows. Each conversation flow may be associated with one or more automation processes that can be invoked. A non-programmer user may **define** the association therebetween and **define** when each conversation flow is selected, and in which conditions each automation process is invoked.” (Ex1001, 6:61-67 (emphasis added)). In each of these examples, a POSITA as of November 5, 2017 would understand that the user (a non-programmer user) is performing the “defin[ing]” process, in the example, using the chat bot editor 110.

79. Thus, in order to “enable a non-programmer user (not shown) to define a flow of conversation for a chat bot”, the ’732 Patent discloses use of “[a] Chat Bot Editor 110” (Ex1001, 8:44-46). In discussing such a conversational flow, the ’732 Patent explains, “[t]he user may **define** which questions the bot would ask, which remarks it will make, flow control operations that may be based on evaluated conditions, such as branching operations, or the like.” (*Id.*, 8:46-49). In relevant embodiments, “the user may **define** for a conversation flow which automation process is invoked thereby and which parameters are passed thereto.” (*Id.*, 8:50-52). Consistent with the disclosure, editor 110 may define “several conversations for a single chat bot (e.g., HR Bot)” which “may be **defined** to select the correct conversation to follow based on user input”. (*Id.*, 8:56-60). When “a conversation is

associated with multiple automation processes” as part of the user definition process, the correct automation process “may be selected based on the interaction with the user” by the natural language interface of the Bot. (*Id.*, 8:53-55).

80. In embodiments, the editor 110 may “store the definitions of the conversation in a database, such as Conversation Definitions 102” that in turn “can be accessed at runtime when the chat bot service is being executed.” (*Id.*, 8:61-65).

81. FIG. 5A illustrates a “user interface” which includes “Screen 500 ... a conversation editor GUI” (*Id.*, 15:15-18).



(Ex1001, FIG. 5A of the '732 Patent)

82. As shown in FIG. 5A, the editor in embodiments is configured to display the details of multiple conversations used in bots, including Conversation

520c, “Add New Employee”, as well as Conversation 520a, “Add Expenses”, and Conversation 520b, “Open New Requisition”.

83. FIG. 5B shows in “Conversation Details Editor 540, the details of Conversation 520c” (Ex1001, 15:40-41).

The screenshot displays the 'Conversation Details Editor 540' interface. At the top, a sidebar (405) contains navigation links: '>Bots', '>Conversations' (selected), and '>Connections'. The main area is divided into sections. The 'Conversation Settings' section (544) includes fields for '* Name' (542) with the value 'Add New Employee', '* Display Name' (544) with the value 'Add New Employee', and '* Keyword To Search By (Intent)' (546) with the value 'new x'. Below this is the 'Conversation Flow' section, which contains a sequence of steps: 'ADD MESSAGE' (552), 'ADD QUESTION' (554), 'ADD CONDITION' (556), and 'ADD ACTION' (558). A table below the flow section lists the steps with columns for 'Type', 'ID', 'Name', 'Next step', and 'Actions'. The table contains the following data:

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

At the bottom of the editor is an 'UNPUBLISH' button.

Fig. 5B

(Ex1001, FIG. 5B of the '732 Patent).

84. With respect to the “**defining** a conversation” process of element [a], “a conversation flow may be **defined** by the user, using the GUI [of the editor] and without requiring coding capabilities or API invocations.” (Ex1001, 15:52-54).

Thus, the GUI depicted in FIG. 5B allows the user to interactively define a conversation and its flow. In particular, “the user may add new steps to Conversation 420 c using Buttons 552, 554, 556, 558.” (*Id.*, 15:54-56). Each may be used to define the conversation flow:

- “**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. The definition may be explicit (e.g., fixed text).” (*Id.*, 15:52-59 (emphasis added)).
- “**Add Question Button 554** may be configured to add a question step, in which the chat bot may attempt to retrieve information from the user. The question step may define the type of input to be gathered and a name of a parameter for referring to the user-provided value thereof.” (*Id.*, 15:62-67 (emphasis added)).
- “**Add Condition Button 556** may be configured to add a condition step, in which a condition is evaluated and two alternative flows are selected based thereon. The user may define the condition, as well as the selected next steps for each possibility.” (*Id.*, 15:67-16:4 (emphasis added)).
- “**Add Action Button 558** may be configured to add an action step, in which an automation process is executed. The user may define how to execute a

parameterized automation process and may match the parameters provided during the conversation with the parameters to be provided to the automation process. In some cases, the user may also define how environment variables, user-associated data, or other available data sources not gathered by the natural language interface of the chat bot, may be used as parameters of the parameterized automation process” (*Id.*, 16:4-13 (emphasis added)).

85. As shown in FIG. 5B, the defined conversation includes conversation flow steps 550a-550i. Step 550a is a “message step” 550A, “in which the bot acknowledges that the conversation commences and tells the user that the bot would assist her in adding a new employee to the system.” (Ex1001, 16:14-17). Additionally, “[t]he step indicates a next step, which may be selected from the dropdown list of the steps already defined for Conversation 520c.” (*Id.*, 16:17-19). Steps 550b-550f are “question steps”, which enable the bot to obtain information related to the “employee identifier of the new employee”, “the name of the employee, email address, and his business unit”, respectively. (*Id.*, 16:20-24). Step 550g is “a condition step,” which allows for multiple outcomes depending on the answer – Step 550i is a Step 550h is a “success-next step”, and Step 550h is a “fail-next step”. (*Id.*, 16:25-32). These are both “action steps in which an automation process is executed.” (*Id.*, 16:33-34).

86. Thus, in my opinion, a POSITA as of November 5, 2017 would understand that the “defining” processes are being performed by a user (a non-programing user) using some software (e.g., the chatbot editor for the conversation) that is different than the “natural language interface” (e.g., the chatbot) or the “computer program” (e.g., the target system that has a functionality which is executed by the automation process).

b. Step 330: Associate the Conversation with an Automation Process (Elements [b] & [c])

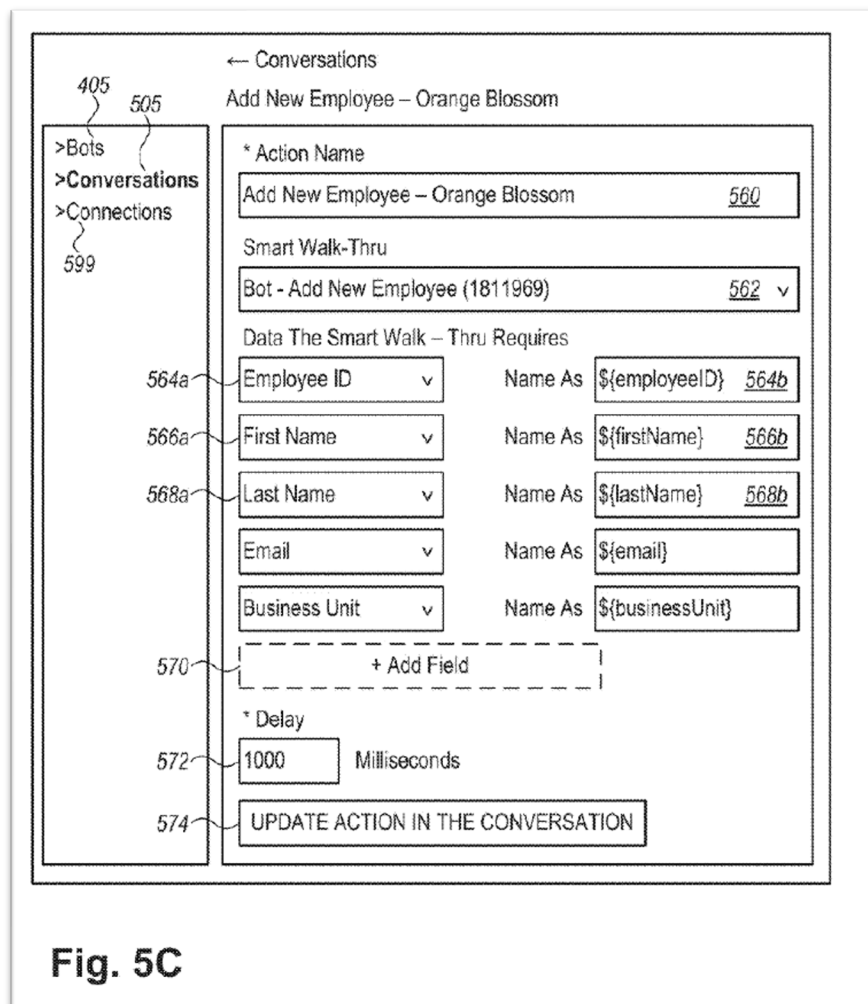
87. The “**associating**” the conversation and automation process step (elements **[b]** and **[c]**) provides “**associating** the conversation with [a parameterized] automation process”, that depends on the “parameters” that are “defined” in step **[a]** whose values are obtained from the user of the natural language interface during the conversation. In my opinion, a POSITA as of November 5, 2017 would thus understand that the associating step **[b]** would need to follow the defining step **[a]**. The parameterized automation process “utilize[s] 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” (Ex1001, Claim 1, 22:24-31; Claim 11, 23:34-41; Claim 18, 24:35-42; Step 330).

88. In regard to this process, the '732 Patent explains “[o]n Step 330, one or more automation processes may be **associated** with the conversation. The 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. Conversation flows having branch operations may be associated with more than a single automation process. Additionally or alternatively, a plurality of automation processes may be performed sequentially (either immediately one after the other, or with intermediate questions therebetween).” (Ex1001, 14:15-24).

89. The '732 also provides a specific example of a GUI which can be used to associate an automation process. In the context of the chatbot editor displayed in FIG. 5B, the '732 Patent explains that the “**Add Action Button 558** may be configured to add an action step, in which an automation process is executed. The user may define how to execute a parameterized automation process and may **match** the parameters provided during the conversation with the parameters to be provided to the automation process. In some cases, the user may also define how environment variables, user-associated data, or other available data sources not gathered by the natural language interface of the chat bot, may be used as parameters of the parameterized automation process” (Ex1001, 16:4-13 (emphasis added)). In my

opinion, a POSITA as of November 5, 2017 would understand that the reference to “match the parameters” is an implementation of the “associating” step.

90. The '732 Patent also provides FIG. 5C, illustrating a schematic illustration of the editor of an action step, which enables the definition of such “action steps”:



(Ex1001, FIG. 5C of the '732 Patent).

91. “In some exemplary embodiments, the automation process may be a parameterized automation process that can be provided with values to its parameters.” (Ex1001, 16:66-17:1). The “action step editor” depicted in FIG. 5C “enables modification to the various parameters of the action step.” (*Id.*, 16:51-52).

92. As is relevant here, using the graphic user interface, “[t]he user may **associate** parameters gathered by the conversation (e.g., by Question Step 550b, 550c, 550d, 550e of FIG. 5B).” (*Id.*, 17:2-4). Each “parameter” is matched with an automation parameter: (e.g., Parameter 564a (“Employee ID”) with Automation Parameter 564b (“\${employeeID}”), Parameter 568a (“Last Name”) with Automation Parameter 568b (“\${businessUnit}”), etc.). (*Id.*, 17:8-19).

93. In my opinion, based upon the grammar of the claim language, as well as the embodiments disclosed in the specification, a POSITA as of November 5, 2017 would understand that the “associating” step corresponding to elements [b] and [c] would need to follow the “defining a conversation” step corresponding to element [a]. Specifically, in order to associate an “automation process depending on the one or more parameters”, the “one or more parameters” must first have been defined. This is consistent with the description that the “Add Action Button” and “action step editor”, which in embodiments implements the “associating” step, are used to

“match the parameters provided during the conversation” after such parameters are “defined” in step [a]. (Ex1001, 16:4-13).

c. Step 340: Publish the Conversation (Element [d] & [e])

94. The final step in the claims is “publishing the conversation to be accessible to a user via the natural language interface”. When the conversation is published, “the user is enabled to interact with the natural language interface in accordance with the conversation” and “the parameterized automation process is invoked automatically by the natural language interface and using [the] values provided by the user to the natural language interface for [the] parameters” (Ex1001, Claim 1, 22:32-39; Claim 11, 23:42-49; Claim 18, 24:43-50; Step 340).

95. In regard to this process, the ’732 Patent explains “[o]n Step 340, the conversation may be **published** and made available to be implemented by a chat bot service. In some exemplary embodiments, the **publication** may assign the conversation to a specific bot. For example, HR Bot may be assigned several conversations that are different from those of a CRM Bot.” (Ex1001, 14:25-30).

96. The ’732 Patent also explains that the bot itself can be published, which is a distinct process from publishing the conversation to a bot. “A **published** bot may be accessible via a launcher defined to be able to launch it. In some exemplary embodiments, the publication is implemented by updating a database to cause the

launcher to be able to launch the bot. Additionally or alternatively, **publication** through third-party platforms may include creation of a non-human user and assigning conversation therewith to be processed by a chat bot conversation microprocess that is configured to access a database to determine parameters of the conversations of the bot. The **publication** may include updating the databases accordingly. In some exemplary embodiments, a publication of a bot may comprise publishing all (previously unpublished) conversations used by the bot.” (Ex1001, 14:41-53). In my opinion, a POSITA as of November 5, 2017 would understand that in each of these examples, the publication is occurring after the defining and associating step, and in a manner that allows a different piece of software, the claimed “natural language interface” to access/implement the conversation that was defined and associated as part of the claimed process.

97. One of the technical problems, as discussed, that the '732 Patent seeks to address is to avoid the need for a user defining the conversation “without requiring any line of code” (Ex1001, 6:3-7). Thus, in the context of the use of a “point and click editor” to define the conversation, as discussed extensively in the '732 Patent, which is then associated with an automation process and published, avoids this problem. (*Id.*, 6:3-10).

VI. CLAIM CONSTRUCTION

98. I have been informed that claim terms should generally be given their ordinary and customary meaning as would be understood by a person with ordinary skill in the art at the time of the invention (“POSITA”) in the context of the specification, the prosecution history, other claims, and even extrinsic evidence including expert and inventor testimony, dictionaries, and learned treatises. I have also been informed that claim terms may be construed differently when a patentee sets out a definition and acts as his or her own lexicographer, and when a patentee disavows the full scope of a claim term either in the specification or during prosecution.

99. I note that Dr. Beigi claims to have adopted the “ordinary and customary meaning of the terms” in his analysis, and did not expressly construe any of the claim terms. (Ex1003, ¶¶48-49). Similarly, the Petition (Paper 2, at 6) and the Board’s Institution Decision (Paper 10, at 13), did not expressly construe any term.

100. As I discuss below, in my opinion, a POSITA as of November 5, 2017 would understand that several of the claim terms of the ’732 Patent have a specific meaning as evidenced by, *inter alia*, the specification of the ’732 Patent. For purposes of my analysis, I accordingly adopt the following constructions, for reasons discussed below:

Claim Term	Construction
“defining”	generating by a non-programming user via a user interface a flow in a manner practicable by novices and non-programmers without needing to use dedicated APIs, programming languages or the like
“defining an automation process”	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
“defining a conversation”	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
“computer program”	a target system whose functionality is invoked through by the automation process using its displayed user interface, such as a graphical user interface
“displayed user interface”	The displayed user interface of the target system that the user may utilize in order to activate the functionalities of the target system.
“associating the conversation with the automation process”	connecting or matching a conversation configured to obtain from the user one or more values to one or more parameters with a parameterized automation process depending on the one or more parameters.
“publishing the conversation”	making the conversation 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.
Order of Claimed Steps	the claims require that the “defining” step in element [a] to be performed prior to the “associating” step in elements [b] & [c], both of which are required to be

Claim Term	Construction
	performed prior to the “publishing” step in elements [d] & [e]
[Claims 3, 13] at least one of: a message element and a condition element	at least one message element and at least one condition element

A. “Defining”, in the context of “defining an automation process” [1-PRE, 11-PRE and 18-PRE] and “defining a conversation” [1[a], 2, 11[a], 12, 18[a] and 19] and “defined” [Claim 9]

101. Claims 1, 11 and 18 use the claim term “defining” both in the context of “defining an automation process” in the preambles [1-PRE, 11-PRE and 18-PRE] as well as “defining a conversation” in the context of step 1[a], 11[a], and 18[a] as well as dependent claims 2, 12, and 19.

102. In the abstract, disconnected from the specification of the ’732 Patent, the concept of “defining” either an automation process or a conversation would generally entail a user operating a computer program to set out either the sequence of events that make up the automation process or the questions and branching logic that would be used by a natural language interface of a chatbot in a conversation. However, as discussed in detail in Section V, *supra*, the ’732 Patent is not directed towards a method of defining an automation process or conversation in such a generic manner, but is meant to address problems present in the prior art which inhibited users attempting to set up automation processes and conversation flow.

103. Indeed, as the Board explains in its Institution Decision, the '732 Patent is directed towards providing means for user-definition of the conversation:

The '732 Patent discloses exemplary embodiments for a non-programmer user to define a flow of conversation for a chat bot. See, e.g., Ex1001, 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 8:45-49. 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.

(Paper 10, pp. 3-4, quoting Ex1001, 8:45-55, 11:27-28).

104. In my opinion, the '732 Patent uses the concept of “defining” in a different manner, using it to refer to methods of defining that do not require computer programming or the use of APIs. Indeed, the '732 Patent’s novel approach to solving the problems present in the prior art revolves around its unique ways of, *inter alia*, “defining” a conversation. In the context of the '732 Patent, the claimed invention is seeking to address “one technical problem” which “is to provide a user-friendly manner of defining functionality of chat bots.” (4:59-61). The '732 Patent “desired to enable defining the chat bots without the need of using dedicated APIs,

programming languages, or the like” with “non-programmers performing the definition processes.” (5:29-32 *see also* 6:1-2). “A novice user may define in a simple manner the parameters of the conversation that the chat bot implements and the automation process that would be executed based thereon using this seemingly simple techniques, a fast and efficient manner of providing chat bot functionalities is enabled.”(6:20-25). For example, the ’732 Patent provides 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”. (6:7-10). In other words, the ’732 Patent uses “defining” as the process of allowing non-programmers and novice users to create automation processes and conversations without relying on programming skills.

105. Accordingly, in my opinion, in the context of the ’732 Patent, a POSITA as of November 5, 2017 would understand the phrase “defining” means generating by a non-programming user via a user interface a flow in a manner practicable by novices and non-programmers without needing to use dedicated APIs, programming languages or the like.

106. Thus, in my opinion, in the context of the ’732 Patent, a POSITA as of November 5, 2017 would understand the phrase “defining **an automation process**” means 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.

107. Similarly, a POSITA as of November 5, 2017 would understand the phrase “defining **a conversation**” means 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.

B. “Computer program”

108. Claims 1, 11 and 18, require the claimed automation process to be execute a “functionality” of a “computer program” by “simulat[ing]” a “sequence of interactions” using a “displayed user interface” of the “computer program”.

109. The ’732 Patent explains that the term “computer program” is used to “refer[] to” the “target system” (Ex1001, 5:6). Accordingly, in my opinion, a POSITA as of November 5, 2017 would thus understand that the term “target system” is synonymous with “computer program” as used in the specification.

110. As the ’732 Patent also explains, “the target system” has a “user interface, such as a Graphical User Interface (GUI)” and the “chat bot . . . abstract[s]

away the actual system. . . . The chat bot may simply extract the user's intention, identify the relevant action to be performed, and extract relevant information to be used as part of the automation process.” (5:42-43, 45-48), but the automation process is “in charge of the actual use of the system.” (5:43-44).

111. Dependent claim 9 uses the claim term “computer program” in the context of the “automation process,” specifically claiming “wherein the automation process is configured to execute a new functionality of the **computer program** based on the values to the one or more parameters, without relying on a dedicated Application Programming Interface (API) of the computer program.” (Ex1001, 23:14-19). Claim 10 claims “the functionality of the **computer program** comprising inputting data to a field in the displayed user interface.” (Ex1001, 23:20-22)

112. In each instance, in my opinion, a POSITA would understand that the dependent claim reinforces that the “computer program”, must have functionality that is being implemented based on the parameters that are collected as part of the conversation defined, associated and published to the natural language interface in steps [a]-[e]. A POSITA would also understand the purpose of the published conversation differs from the associated automation process to be performed on the target system. The conversation is meant to elicit information to be used as part of

the automation process, and the automation process is meant to activate the functionality of the “computer program” (target system).

113. In my opinion, consistent with the claim language discussed herein, a POSITA as of November 5, 2017 would understand from the '732 Patent Specification that the term “computer program” means a target system whose functionality is invoked through by the automation process using its displayed user interface, such as a graphical user interface. (*See* Ex1001, 5:1-13; 6:26-28).

C. “Displayed user interface” of a computer program

114. Claims 1, 11 and 18 use the claim term “displayed user interface” in the context of the “computer program” as well as dependent claim 10.

115. The '732 Patent explains that the displayed user interface of “the target system, generally referred to as the computer program, may be a website, a web-based system, a native mobile application . . . a desktop application . . . or the like.” (5:6-10). In other words, the “displayed user interface” is a “Graphical User Interface (GUI), that the user may utilize in order to activate the functionalities of the target system.” (5:10-13).

116. In my opinion, a POSITA as of November 5, 2017 would understand that the term “displayed user interface” is of the “target system . . . that the user may utilize in order to activate the functionalities of the target system.” (8:13-16). For

example, when a user browses a website and clicks something that user is utilizing the “displayed user interface” to “activate the functionalities of the target system,” with respect to whatever has just been clicked.

D. “Associating the conversation with the automation process”

117. Claims 1, 11 and 18 use the claim term “associating the conversation with the automation process”.

118. As illustrated in the ’732 Patent specification, the “associating” process is, like defining a conversation, accomplished by a user determining “using a click-and-point GUI, which automation process would be invoked and when, with respect to the conversation flow.” (Ex1001, 14:15-24). Using the graphical user interface, after selecting an automation process to be invoked, “[t]he user may **associate** parameters gathered by the conversation (e.g., by Question Step 550b, 550c, 550d, 550e of FIG. 5B).” (*Id.*, 17:2-4). Each “parameter” is matched with an automation parameter: (e.g., Parameter 564a (“Employee ID”) with Automation Parameter 564b (“ $\{employeeID\}$ ”), Parameter 568a (“Last Name”) with Automation Parameter 568b (“ $\{businessUnit\}$ ”), etc.). (*Id.*, 17:8-19). In my opinion, a POSITA as of November 5, 2017 would understand from the ’732 Patent Specification that the term “associating the conversation with the automation process” means connecting or matching a conversation “configured to obtain from the user one or more values

to one or more parameters,” (Ex1001, 2:63-63) and connecting that conversation with “a parameterized automation process depending on the one or more parameters” . (*Id.*, 3:1-2).

E. “Publishing” the conversation

119. Claims 1, 11, and 18 use the claim term “publishing” in the context of the conversation.

120. “Publishing” generally means, in the context of software or content publication, to produce or release an electronic record of the definition of the conversation for distribution. In accordance with this ordinary meaning, a POSITA as of November 5, 2017 would understand from the ’732 Patent Specification and Claims that the term “publishing” (with respect to the conversation after it was defined and associated with an automation process) makes the conversation “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 . . .” (Ex1001, 3:1-5; Claim 1, 22:32-39; Claim 11, 23:42-49; Claim 18, 24:43-50).

121. The ’732 Patent Specification provides a specific example of the publication process as “assign[ing] the conversation to a specific bot.” (Ex1001, 14:27-28). The ’732 Patent provides that the user can “add or remove conversations” from a bot directly in a “bot details editor” (*Id.*, 14:57-62, FIG. 4B). The bot itself,

which enables the implementation of the conversation, “may be assigned several conversations”, which can be “different from those of” another bot (*Id.*, 14:26-30). Conversations can also be “published” and “unpublish[ed]” using a chatbot editor (*Id.*, FIG. 5A-5B).

F. The Order of the Claimed Steps

122. With respect to the claimed steps laid out in Claims 1, 11 and 18, in my opinion, a POSITA as of November 5, 2017 would understand, based on logic and grammar, that first, a conversation must be defined, then, that conversation must be associated with the automation process, and finally, the conversation, after being associated with the automation process, must be published.

123. First, the '732 Patent calls for “defining a conversation” which is “configured to obtain from the user one or more values to one or more parameters” (Ex1001, Claim 1, 22:20-23; Claim 11, 23:30-33; Claim 18, 24:31-34). It then calls for “associating the conversation with the automation process”, which is “a parameterized automation process depending on the one or more parameters.” (*Id.*, Claim 1, 22:24-31, Claim 11, 23:34-41, Claim 18, 24:35-42). From this claim language, and consistent with FIG. 3, in my opinion, a POSITA as of November 5, 2017 would understand that “defining the conversation” includes establishing the parameters to be obtained during a conversation (once implemented), and

“associating the conversation with the automation process” includes associating parameters of the automation process with the parameters of the defined conversation. Accordingly, a POSITA would understand that the step of “associating the conversation with the automation process” logically and grammatically comes after the step of “defining the conversation.”

124. Similarly, the step of “publishing the conversation” must come last. This step makes “the conversation ... accessible to a user via the natural language interface”, “enabl[ing]” the user to interact with the conversation and “invoke[]” the parameterized automation process using “values provided by the user ... to the one or more parameters.” (Ex1001, Claim 1, 22:32-39; Claim 11, 23:42-49; Claim 18, 24:43-50). This is consistent with the Specification of the ’732 Patent, which provides method steps in FIG. 3 following this order (“Define a conversation 320”, “Associate an automation process with the conversation 330”, “Publish the Conversation 340”).

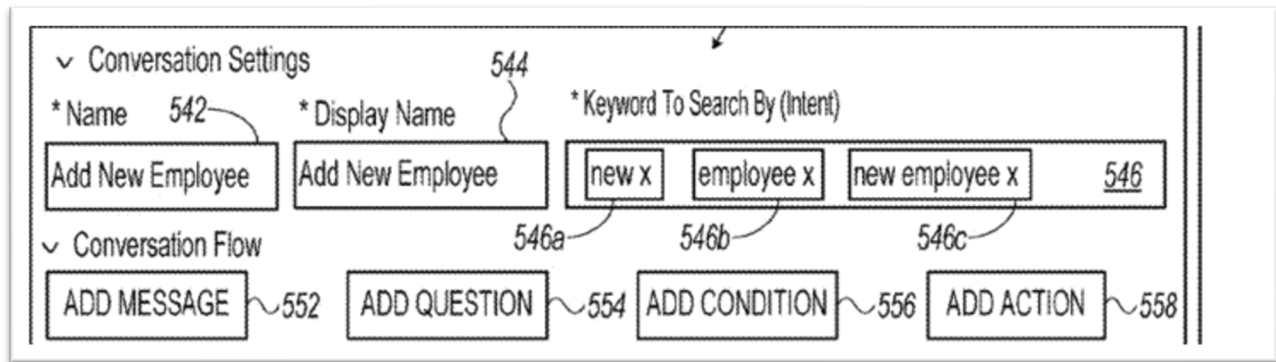
125. In my opinion, given these elements, a POSITA as of November 5, 2017 would understand that the step of “publishing the conversation” (element [d] & [e]) would come after the step “associating the conversation with the automation process” (element [b] & [c], which must come after the step of “defining the conversation” (element [a])).

G. Claims 3, 13: “at least one of: a message element and a condition element.”

126. I have been informed that the Federal Circuit has stated that, where the phrase “at least one” precedes a series of categories of criteria, and the patentee used the term “and” to separate the categories of criteria, grammatical principals confirm that ““at least one of” modifies each member of the list.” This grammatical construction makes sense.

127. Applying the same grammatical principles to the element “at least one of: a message element and a condition element”, in my opinion, a POSITA as of November 5, 2017 would understand that the claim requires there to be at least one message element and at least one condition element.

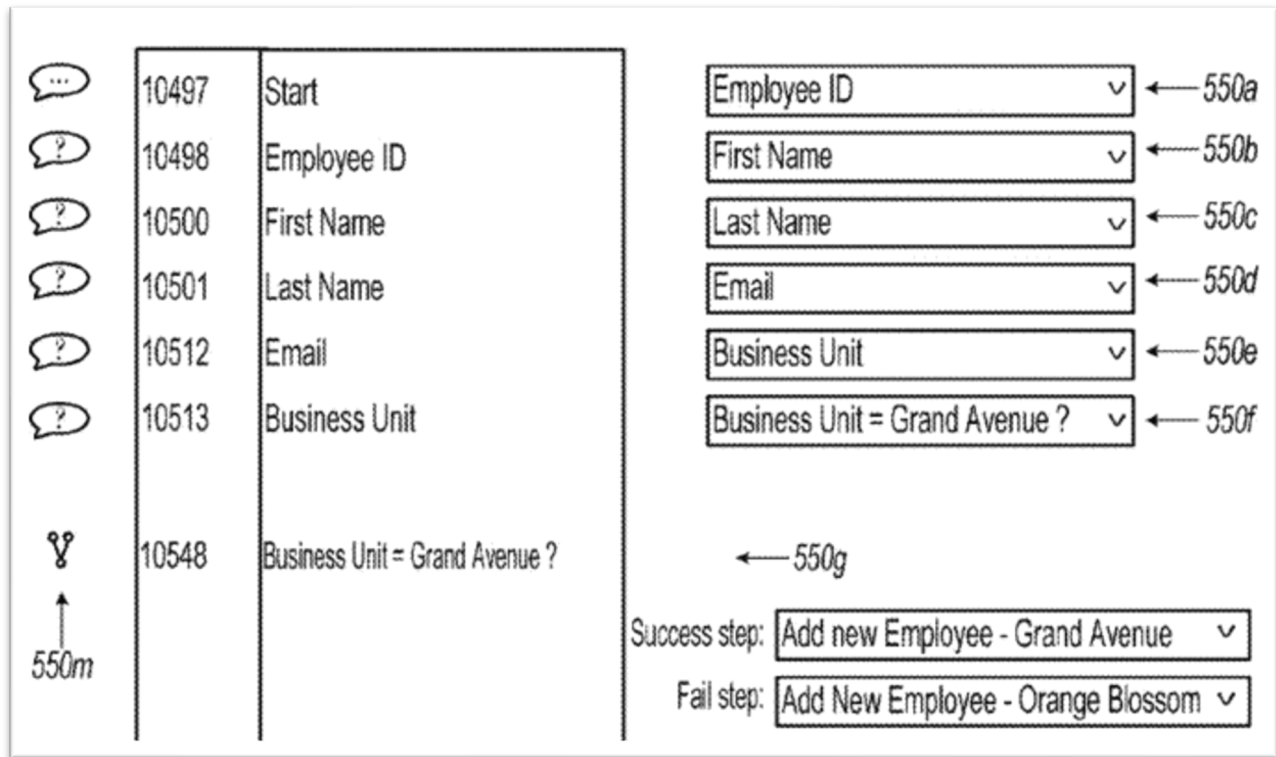
128. This conclusion is also consistent with the specification of the '732 Patent, which provides an example where both a “message” and a “condition” element are shown. In particular, in the context of FIG. 5B of the '732 Patent, the conversation editor GUI shows how a user can add a message (“ADD MESSAGE 552”) and add a condition (“ADD CONDITION 556”):



(Ex1003, Excerpt from FIG. 5B)

129. As this excerpt illustrates, a “message” is different than a “condition”, which are both different than a “question” and a “action”. A non-technical user can add all four to the conversation.

130. Indeed, the '732 Patent illustrates a conversation flow including both a message element (“Step 550a” and “10497 Start”) as well as a condition element (“Step 550g” and “10548 Business Unit = Grand Avenue?”):



(Ex1003, Excerpt from FIG. 5B)

131. As the specification of the '732 Patent explains: “Step 550a may be a message step, in which the bot acknowledges that the conversation commences and tells the user that the bot would assist her in adding a new employee to the system. . . . Step 550g, which may be defined as the step following Step 550f, may be a condition step. The condition step may define a condition to be evaluated and based thereon the flow could continue in different paths.” (Ex1003, 16:14-28).

132. The message step 550a and condition step 550g are further distinguished from question step 550b “in which the bot attempt[s] to obtain an employee identifier of the new employee”, as well as question “[s]teps 550c, 550d,

550e, 550f . . . in which the name of the employee, email address and his business unit are obtained from the user.” (Ex1001, 16:20-24). Message step 550a and condition step 550g are also distinguished from action steps “550h and 550i . . . in which an automation process is executed.” (Ex1001, 16:33-34).

133. Thus, consistent with the grammatical reading, the example shown in FIG. 5B defines a conversation as including conversation elements consisting of at least one message element and at least one condition element.

134. Accordingly, in my opinion, consistent with the grammatical principles outlined by the Federal Circuit and the disclosure of the '732 Patent, a POSITA as of November 5, 2017 would understand that “at least one of: a message element and a condition element” as used in Claims 3 and 13, requires at least one message element **and** at least one condition element.

VII. PATENT OWNER’S CHALLENGED GROUNDS

A. GROUND 1 – “Symons and Williams [Purportedly] Renders Obvious Claims 1-4, 9-14, 18, and 19” Fails

135. In support of Ground 1 of the Petition, Dr. Beigi asserts that Symons (discussed below) and Williams (Ex1011) render obvious Claims 1-4, 9-14, 18 and 19 of the '732 Patent. Symons does not disclose defining an automation process, defining a conversation, then associating the conversation with the automation process, and then publishing the conversation, but merely shows a video of a chat and an RPA process. I thus disagree with Dr. Beigi’s analysis, as he fails to show that these elements are inherently disclosed in Symons; the internals of Symons are unknown to observers, and Dr. Beigi himself does not know how it operates. As Dr. Beigi admitted during his deposition, “we only see the video, the actual interaction”, not “the internals of it.” (Ex2003, 213:18-214:9).

136. However, as I discuss below, to the extent that Symons and Williams in combination are deemed to purportedly teaches the elements of independent claim 1, 11 and 18, in my opinion, a POSITA as of November 5, 2017 would understand that Symons and Williams still do not teach dependent claims 2, 12, and 19 (as well as respective dependent claims 3-4 and 13-14), nor dependent claims 3, 9 and 13.

1. Summary of Symons

137. In support of the Petition, Dr. Beigi has identified multiple references related to the “Symons” prior art (Ex1003, ¶¶ 49-50) including the:

- **“Symons Blog”**, S. Symons, “When Chatbots meet RPA bots,” Medium (purportedly published Oct. 19, 2017), included as Ex1004; and
- **“Symons Video”**, S. Symons, “RPA meets chatbot: Automatically generates e-mail signature,” Vimeo (purportedly published Oct. 19, 2017), screen shots of original German language version included as Ex1005, EX1033, English language translation and certification at Ex1006 and 1007).

138. As corroboration of the public availability, Dr. Beigi also relies (Ex1003, ¶ 58) upon a blog by Wouter Baetens, published in Chatbots Life, purportedly on October 20, 2017, that also provides a link to the Symons Blog. (**“Baetens Blog”**, Ex1009).

139. Dr. Beigi also relies (Ex1003, ¶ 58) upon supporting declarations of:

- **Sebbe Symons** (Ex1008, including Exhibits A (Symons Blog) & B (Symons Video, in original German), but omitting Exhibit C); and
- **Wouter Baetens** (Ex1010, including Exhibit A (Baetens Blog from medium), B (Baetens Blog from Chatbots Life), C (Symons Blog) & D (Symons Video Screenshots in original German))

140. For purposes of this declaration, I do not have an opinion whether or not the Symons Blog, Symons Video and Baetens Blogs were publicly available, but instead assume solely for purposes of this proceeding they are prior art in the forms submitted as Exhibits for purposes of my analysis.

141. In the Symons Blog, Senne Symons describes the chatbot in the video thereof as follows:

The goal of the showcase is to automate the process of creating an email signature. First, the chatbot collects all the necessary information in a friendly, interactive manner. This information gets passed on to the RPA robot, which will then automatically generate the signature, save it, and email it back to the requester. The whole process is completed within a minute. Easy and smooth integration proves a great future for both technologies [chat bots and RPA robots].

(Ex1004, 2-3).

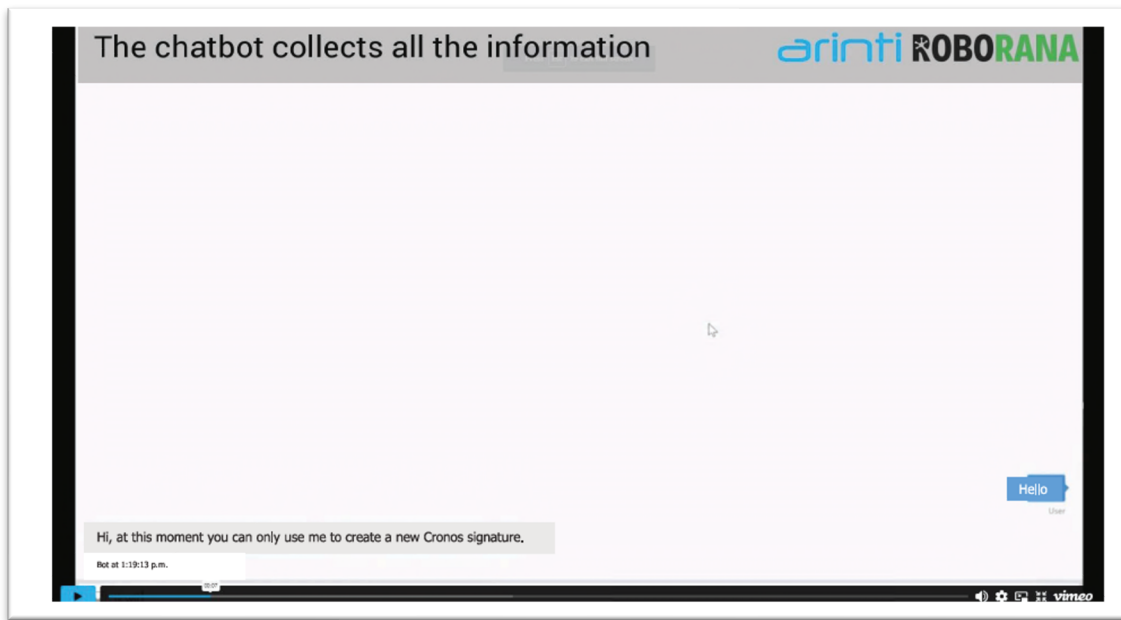
142. Wouter Baetens, in the Baetens Blog purportedly written around the same time, describes the chatbot in the video in a similar way, providing no additional detail. (Ex1009, 2). To the contrary, he confirmed “we can’t share much about the results of our joint efforts (yet)” (*Id.*).

143. Dr. Beigi also relies extensively in his declaration on the English language translation of the Symons Video itself provided at Ex1006/Ex1007). (*See,*

e.g., Ex1003, ¶¶ 60, 62-63, 77-79, 83-99, 103, 106, 117). For purposes of my analysis for this proceeding, I am not offering any opinion as to the accuracy of the translation and assuming the translation is accurate.

144. The Symons Video (Ex1006-Ex1007) likewise provides little, if any, details on how the underlying chatbot and RPA bot are programmed to operate. As Dr. Beigi explains (Ex1003, ¶62), the Symons Video only shows a video that allegedly “[a]utomatically generate[s an] e-mail signature”. (Ex1006, 1). At his deposition, Dr. Beigi confirmed that he does not know how “the internals” of Symons works, and that he never discussed with Symons how it works. (Ex2003, 213:18-214:9). In Dr. Beigi’s words, “we only see the video, the actual interaction”, not “the internals of it.” (*Id.*). I agree that neither the Symons Blog, the Symons Video, nor the Baetens Blog provide any information on what Dr. Beigi calls the “internals”, which, as I note above, Baetens confirmed was intentional. (Ex1009, 2).

145. In particular, the video shows text of a ‘User’ saying “Hello” and then being told, by “Bot”, **“Hi, at this moment, you can only use me to create a new Cronos signature”**:

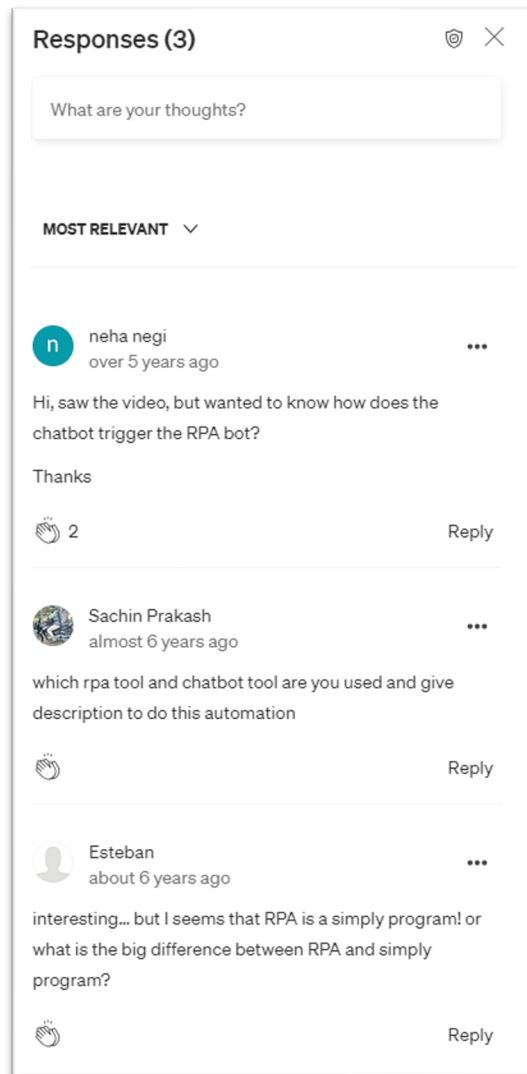


(Ex1006, 2)

146. Thus, consistent with the stated goal, in my opinion, a POSITA as of November 5, 2017 would understand there is simply one hardwired conversation which can only invoke a single automation process. Thus, in my opinion, a POSITA would understand the Symons video does not disclose **a plurality of conversations, nor a plurality of automation of process to be selectively invoked from one or more conversations.**

147. As Dr. Beigi points out (Ex1003, ¶62), the video then shows several messages where a user's name, job role, email address, and mobile phone number are given. (Ex1006, 3-6). **No other information is given about the "chatbot", how it was programmed, or why these messages are displayed.** For example, Symons

does not explain how the chatbot knows what questions to ask or what information to collect. As illustrated in comments to the Symons Blog, details about how the chatbot functioned were sparse:



(Ex2005). These comments were posted contemporaneously with the Symons Blog, as I confirmed, when I reviewed the actual posting as it is available

presently. I understand although Dr. Beigi asserts he reviewed the actual posting, he did not notice or consider these comments in formulating his opinions. (Ex2003, 220:11-18, 222:5-16).

148. As displayed in Symons, next, “the chatbot triggers the RPA bot”, (Ex1006, 10) although, again, **the details of how the RPA bot is triggered, or under what conditions, are completely absent.** Even in the Symons Blog, all that is said is that “[t]his information gets passed on to the RPA robot.” (Ex1004, at 2). The “RPA bot [then] automatically opens [the] browser and enters details”, ostensibly those provided by the user to the chatbot. (Ex1006, 11-12). The video appears to show an RPA bot copying the generated signature to the clipboard (Ex1006, 13-14), opening a word document (Ex1006, 15), pasting the clipboard contents into the opened word document (Ex1006, 15), and then emailing the word document to the user of the chatbot (Ex1006, 16-22). Thus, the RPA bot utilizes a browser, copying functions, Word and an Email client (i.e., **3 or 4 different computer programs**).

149. Mr. Symons also gave a declaration authenticating aspects of Symons. In it he describes the chatbot as conducting the following process:

In Exhibits A and B, the developed Chatbot-RPA automatically created an email signature using information collected by the chatbot. The chatbot interacted with the user to collect all the necessary information.

Once the information was collected, the RPA bot was triggered. The RPA bot automatically generated the email signature, saved it, and emailed it back to the user.

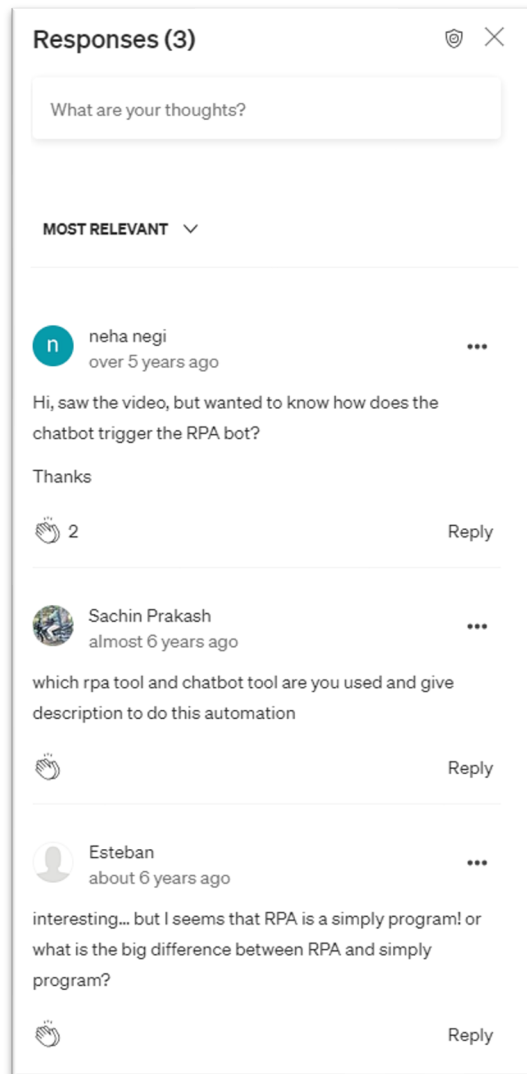
Ex1008, ¶ 9.

150. Mr. Baetens provided a declaration to a similar effect. (*See* Ex1010, ¶ 8). This description does not fill any of the gaps I note above.

151. While Dr. Beigi quotes language from the blog about some of the benefits of chatbots and RPA (Ex1003, ¶64), the language in the blog provides no additional information regarding the actual operation of the chatbot or the RPA it allegedly implements. Further, there is no explanation in the Symons Blog, Symons Video, Baetens Blog, the Symons Declaration nor the Baetens Declaration if or how the conversation that was implemented in the chatbot was generated, let alone if the conversation was first defined, then associated with the defined automation process, and then if it was separately published. At his deposition, Dr. Beigi confirmed that, **“So I don’t think that there’s anything inherent where you would have to say specifically, this one has to happen until I go do that one”** in response to the question of whether “there’s nothing inherent [in] the order of defining versus associating **just because a conversation exists**”. (Ex2003, 243:11-244:3).

152. As illustrated in comments to the Symons Blog (Ex2005), various independent third parties at the time confirmed that neither they (and in my opinion,

a POSITA as of November 5, 2017) would not have known “how . . . the chatbot trigger[s] the RPA bot”, how the automation process was defined or described, or whether an RPA module was used (as opposed to another type of program):



(Ex2005).

153. In my opinion, a POSITA as of November 5, 2017 would understand from the Symons Blog, Symons Video and Baetens Blog that:

- the evidence does not clearly establish whether the Chatbot-RPA discussed in Symons Blog and Baetens Blog, and purportedly demonstrated in Symons Video, was actually built at the time, 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);
- while it purports to use a “chatbot” to “collect all the necessary information in a friendly, interactive manner”, 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);
- the “chatbot” was only programmed to implement a single RPA, a single conversation thread, and did not offer the user to select 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; and
- the RPA did not interact with a single target software, like WAZE™ (as discussed in the '732 Patent, Ex1001, 6:31-37), but instead implemented a process invoking at least 3 or 4 different pieces of software.

154. Indeed, in my opinion, a POSITA as of November 5, 2017 would understand that there are many ways a conversation for a chatbot could be developed. By way of illustration (as discussed), I have prepared my own showcase Chatbot included as Ex2010, which demonstrates code (attached as Ex2009), which performed the same “conversation” shown in the Symons video. As I explain in Ex2006 to my declaration, it gathered the same information in the same manner, and was capable of passing that information to another system such as an RPA bot. This showcases a Chatbot that does not use NLP and would not meet the limitations in the '732 Patent claims either in terms of utilizing a natural language interface, nor in terms of defining a conversation, associating a conversation with an automated process, or publishing a conversation (none of which is disclosed in Symons, either). Likewise, as Dr. Beigi confirmed during his deposition, an automation process could

be defined, and associated with a conversation that is defined after the association.
(Ex2003, 243:11-244:3).

155. Additionally, as I discuss in detail with respect to Claims 2 and 3, Symons also does not disclose an ordering of a conversation to obtain parameters, nor elements of the conversation, which only bolsters my conclusion that Symons does not teach defining a conversation. In contrast to the '732 Patent, which discloses defining a conversation using, e.g., a GUI via buttons including an “add message button 552”, an “add question button 554”, an “add condition button 556”, and an “add action button 558” (Ex1001, 15:52-16:13), Symons provides no comparable disclosure about how a conversation, or the order, may be defined, let alone must be defined.

1. Summary of Williams

156. In support of the Petition, Dr. Beigi also relies on an IBM White Paper he refers to as “**Williams**”:

- D. **Williams** et al., “Using artificial intelligence to optimize the value of robotic process automation,” IBM White paper (2017), from September 2017 (Ex1011).

157. Dr. Beigi in his analysis (Ex1003, ¶ 69) relies upon Williams describing at a high level the use of chatbots by IBM as follows:

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.

Today, IBM is using chatbots for vendor inquiry helpdesk where it replaces a human agent to interface with suppliers who want to understand the status of their payments. 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

(Ex1011, 3) (emphasis added).

158. Dr. Beigi also relies (Ex1003, ¶ 72) upon the discussion in Williams which describes, at a high level, different forms of RPA and the way that AI technologies can be used to improve RPA, by reference to an “Intelligent automation continuum” in Figure 1, ranging from “Robotic process automation (RPA)” to “Intelligent process automation (IPA)”. (Ex1011, 3-4).

159. Per Williams, with RPA, a robot “is taught to drive applications like a human does through the graphic user interface (GUI), following predetermined pathways” and “accesses and assembles structured data performing prescribed actions”. (Ex1011, 4). In IPA, a robot “has autonomous decision and self-remediating capabilities,” “uses AI to redesign and restructure process to optimize operations,” “reasons and remembers information, and learns to identify new insights through data discovery,” “interacts with humans through a combination of advanced algorithms, natural language processing, machine learning, and other forms of AI”, and “[r]ecords every action, transaction, interaction and decision tree, which makes it auditable and accountable”. (Ex1011, 4).

160. Dr. Beigi also relies upon supporting declarations of:

- **Ira Allen**, a co-author of Williams (Ex1012), authenticating Williams and its publication on IBM’s website (Ex1011) and ITC World Canada (Ex1012).

161. Significantly, Mr. Allen offers no insights as to the scope or details of the disclosure of Williams other than it was publicly available.

162. For purposes of this declaration, I do not have an opinion whether or not the Williams Articles were publicly available, but instead assume they are prior art in the forms submitted as Exhibits for purposes of my analysis.

163. Like Symons, Williams is devoid of significant detail aside from broad generalizations about how chatbots and RPA bots might work. In my opinion, a POSITA would have merely understood based on Williams that:

- The discussion on chatbots does not provide any information as to how conversation flows are generated or associated with an automation process;
- The discussion on chatbots does not suggest that a single conversation of a chatbot can be associated to a plurality of RPAs, and the provided example (the supplier asking for their payment status, as a single RPA) suggests otherwise; and
- The disclosed “Intelligent automation continuum”, simply provided a taxonomical definition of RPAs and IPAs, nothing more.

2. Symons and Williams do not disclose or render obvious Claims 1, 11 and 18 (and by extension their dependent claims)

164. As noted earlier in Par. 47, Claim 1 is representative of the other independent claims, Claims 11 and 18. The only difference is the preamble and form of the respective claims. I note that Dr. Beigi, in his Declaration (Ex1003) merely cross references his analysis of the corresponding elements in Claim 1 to show the matching language, in his analysis of Claims 11 and 18. (See Ex1003, ¶¶ 118-125

(Claim 11) and 129-135 (Claim 18)). Accordingly, I will address each of these claims in the context of representative Claim 1, although my analysis applies with equal force to Claims 11 and 18 as noted.

a. 1[a], 11[a], 18[a] – Neither Symons nor Williams discloses or renders obvious “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;”

165. Claim elements 1[a], 11[a], and 18[a] each require 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”. (Ex1001, Claim 1, 22:19-24, Claim 23:29-33, Claim 18, 24:30-34).

166. Dr. Beigi and I both seem to agree that a POSITA as of November 5, 2017 would understand that the claimed “natural language interface” would use “natural language processing” as that would have been understood by a POSITA and implement a natural language “conversation”. *See, e.g.*, (IPR2023-01368, Ex1003, ¶ 40 (contrasting “a single command-like input” with a natural language conversation)).

167. In his deposition, although he was not consistent, Dr. Beigi seems to acknowledge that “natural language interface” and “natural language processing”

require the interface to “mimic human language and understand[] it” and act accordingly. (Ex2003, at 208: 3-6 (discussing his understanding of “chat bots”); *see also* Ex2003, 187:23-188:5 (“the natural language processing unit is trying to assess the information that the person who is uttering it is trying to convey. And that information that is being conveyed, it’s trying to extract that.”)).

168. Dr. Beigi explained that when he spoke to colleagues at his company, Recognition Technologies, and to other people he is working with on natural language processing, his understanding requires communication in “natural language” that is processed and which results in responses based on the input:

Q. ... So when you talk to other people about natural language processing, what is it that you understand it to mean, in your own words, not the expert reports?

I just want to know how would you understand that as someone that is a technical person at Recognition Technology talking to other people who you're working on with on natural language processing?

A. Exactly what you just did. You spoke with me and **I processed that language**, which is a natural language, and **I responded to it** using again natural language.

What natural language processing in the computer science sense is **to mimic that kind of processing** using machinery or a software.

Q. And what would be a natural language interface to the same group of people?

A. I'm not defining this. I'm just explaining what a natural language interface to -- to us means. A natural language interface is an interface that will allow you to do natural language communication with the software.

(Ex2003, 63:15-64:17 (emphasis added)).

169. To the extent Dr. Beigi is confirming that natural language processing requires not merely the use of human language, but for the computer to understand and process the human language to develop a response, I agree. In my opinion, and based on my experience, a POSITA as of November 5, 2017 would understand that an interface, even when presenting questions in what would otherwise be “natural language” would not be a “natural language interface” as understood by those of skill in the art in the context of the '732 Patent unless the interface can also understand the input, process it and generate a response based on the input.

170. In his deposition, while discussing his understanding of a “natural language interface”, Dr. Beigi admitted that merely providing “a form where you fill in name, address, telephone number, would [not] be a human natural language”. (See Ex2003, 60:24-6:3; *see also id.*, pp. 59-60). In this regard, I agree with that conclusion, and in my opinion, a POSITA as of November 5, 2017 would also agree

that merely filing in a form would not be a “conversation” in a “natural language interface” in the context of the ’732 Patent claims. In my opinion, a POSITA as of November 5, 2017 would understand this would be true even if one of the inputs to the form is given in a free text field.

171. During his deposition, Dr. Beigi took the position that since Symons Blog, Symons Video and Baetens Blog referred to a “chatbot” as gathering the information, that a POSITA would necessarily understand that because Symons “us[es] the phrases ‘chatbot’, “chatbot” shown would “do natural language processing”. (Ex2003, 139:3-140:10). I disagree that the use of the term “chatbot” in October or November 2017 by these authors in this context would include such an implication to a POSITA. In my opinion, the chatbot conversation that was shown in the Symons Video is not inherently a “conversation” presented in a “natural language interface” as required by elements [a] and [b]. In fact, the Symons chatbot would have no need for a “natural language interface” since it only requires the user to enter four fixed data fields (name, role, phone, email), which is the equivalent of a data entry form. No conversation or interpretation of the user’s input is demonstrated here, nor is it needed. In my opinion, and based on my experience at the time, and that this was merely a “showcase”/“demo” that information could be gathered by a chatbot and then used by an RPA, there is no reason why such a

showcase needs to demonstrate the use of natural language processing in the demonstration, merely that information could be collected and “passed on” to the RPA.

172. At his deposition, Dr. Beigi confirmed his understanding that Symons and Baeten’s use of the term “chatbot” meant to him (and presumably a POSITA reading those blogs and viewing the video) was based on a discussion he found in Melendez (Ex1026; Ex2003, p. 45:6-12) and a definition of chatbot as provided by the ’664 Patent (Ex2011) itself. (Ex2003, 141:10-13). I disagree with his conclusion and these two sources do not support his conclusion. These two sources do not support Dr. Beigi’s conclusion as to how Mr. Symons and Mr. Baeten’s used the term “chatbot” in October 2017, or how a POSITA as of November 5, 2017 would have understood them to be using that term in October 2017.

173. Putting aside that the Petition does not rely upon Melendez as prior art (Ex2003, 52:10-54:13; Ex1003, ¶¶55-62), Melendez does not state that all “chatbot” necessarily must be using natural language processing.

174. I note that other contemporaneous articles reflect a different understanding than Dr. Beigi of the term “chatbot”.

175. For example, an article (Ex2007) from Expert Insights on August 29, 2019, “Different Types of Chatbots: Rule-based vs. NLP”, marked as Exhibit 19

during Dr. Beigi's deposition (Ex2003, 191:19-190:4), reflects an understanding that Chatbots can be either Rule-based Chatbots or NLP Chatbots, as late as 2019. (*Cf.* Ex2003, 202:18-203:4) (acknowledge that that it "is saying there is a rule-based chatbot and the NLP chatbot"). While Dr. Beigi noted during his deposition that this is later than the priority date, that misses the point. (Ex2004, 338:18-24). In my experience, Rule-based Chatbots existed long prior to NLP Chatbots, and even as late as 2019 were still actively being used.

176. Similarly, even IBM, Dr. Beigi's former employer, and Mr. William's employer, as recently as December 2022, offered a different view of "What is a chatbot?" than Dr. Beigi. For example, on its webpage, as obtained by the WayBack machine, IBM posted its explanation of "What is a chatbot?" (Ex2008). IBM explains that chatbots have developed in complexity over time but can include simple chatbots that chatbots that function "more like an interactive FAQ":

Historically, chatbots were text-based, and programmed to reply to a limited set of simple queries with answers that had been pre-written by the chatbot's developers. They operated like an interactive FAQ, and while they worked well for those specific questions and answers on which they had been trained, they failed when presented with a complex question or one that hadn't been predicted by the developers.

Over time, chatbots have integrated more rules and natural language processing, so end users can experience them in a conversational way.

In fact, the latest types of chatbots are contextually aware and able to learn as they're exposed to more and more human language.

Today's AI chatbots use natural language understanding (NLU) to discern the user's need. Then they use advanced AI tools to determine what the user is trying to accomplish. These technologies rely on machine learning and deep learning—elements of AI, with some nuanced differences—to develop an increasingly granular knowledge base of questions and responses that are based on user interactions. This improves their ability to predict user needs accurately and respond correctly over time.

(Ex2008, at 3).

177. The point is (like Dr. Beigi's understanding of AI ("And I am not a POSITA. I know more about AIs and chatbots") (Ex2003, 194:4-13)), Dr. Beigi's opinion is not that of a POSITA, and his understanding does not indicate what those using the internet understood. This is particularly true given that, back in 2017, chatbots that use natural language understanding were less prevalent than today.

178. In my opinion, and consistent with my experience in the field, a POSITA in 2017 would have understood that the term "chatbot" in referenced in the Symons Blog (Ex1004) and the Baetens Blog (Ex1009) did not necessarily mean that it was what Expert Insights (Ex2007) called an NLP Chatbot. In other words, it

did not necessarily have a “natural language interface” that utilized “natural language processing”.

179. Indeed, in my opinion, review of the Symons video (Ex1033) used to “showcase” this Chatbot-RPA demo would suggest to a POSITA as of November 5, 2017, that the “chatbot” actually used was probably not an NLP Chatbot.

180. My opinion that a POSITA as of November 5, 2017, would conclude that the chatbot shown in this October 2017 showcase did not necessarily use NLP logic is further reinforced by the evidence in the record indicating that:

- this video was put together very quickly (less than 17 days after Mr. Symons began working at Roborana as a “showcase”), it would be very reasonable for a POSITA to conclude that no NLP was included, and was instead a simple hardcoded data entry (non-NLP) chatbot;
- the Arinti chat bot that was identified as being used, was not publicly available at the time,
- neither Dr. Beigi nor I have been able to locate the Arinti chatbot, and
- when those active in the field asked about it, no answer was provided.

181. By way of illustration, after Dr. Beigi’s deposition, I have prepared my own video (Ex2010) showcase of a Chatbot I prepared after Dr. Beigi’s deposition

to simulate a non-NLP conversation that matches the Symons Video (Ex1033). My html code for this conversation is included as Ex2009.

182. As I explain in Ex2006, my non-NLP Chatbot gathered all the same information in the same manner, and was capable of passing that information to another system such as an RPA bot. This showcases a Chatbot that does not use NLP and would not meet the limitations in the '732 Patent claims either in terms of utilizing a natural language interface.

183. I understand that Dr. Beigi is also relying upon the Background Section of the '732 Patent to support his view that when Symons and Baetens used the term “chatbot” they meant an NLP chatbot like the '732 Patent discussed. In particular, I understand he is relying on the following passage:

A Chat bot is a computer program implementing natural language interface to conduct a conversation via auditory or textual methods with the user. Chat bots are typically used in dialog systems for various practical purposes including customer service or information acquisition. Some chatterbots use sophisticated natural language processing systems, but many simpler systems scan for keywords within the input, then pull a reply with the most matching keywords, or the most similar wording pattern, from a database.

(Ex1001, 1:25-46).

184. In my opinion, as of November 5, 2017, a POSITA would not have thought that Symons and Baeten's used the term "chatbot" in the same manner as the '732 Patent, based on that description, since it would not have existed or been available to them. The priority document was filed in November 2017. It is doubtful that either Symons or Baeten would have looked to the '732 Patent to inform their understanding of "chatbots". Even Dr. Beigi confirmed in his deposition, he looks at articles, not patents, in his normal experience. (Ex2003, 56:4-5) ("I usually tend to look for articles, rather than patents, in my experience"). In my opinion, the '732 Patent's definition of what it means by "chatbot" created after these articles were written is not the type of evidence a POSITA on November 5, 2017 would use to interpret what Symons and Baeten meant by the term. Specifically, it was well known in the industry in 2017 that not all chatbots possessed the capability natural language processing, nor required that capability. Many chatbots at that time could be used for simple data entry (equivalent to a data entry form), or be "rules based" that would only understand a limited number of user requests or interactions.

185. The '732 Patent's purpose in defining its own meaning of the term "Chat bot" as "a computer program implementing natural language interface to conduct a conversation" is to distinguish this type of sophisticated chatbot from "many simpler systems". In other words, the '732 Patent's intention is to use a

“natural language interface” within “natural language processing systems” for the purposes of interacting with automated processes. In my opinion, a POSITA as of November 5, 2017 would not understand that the chatbot shown in the Symons video as part of its showcase necessarily used “natural language processing” or was a “natural language interface”, whether “sophisticated” or “simple[]”.

186. In my opinion, as of November 5, 2017, the '732 Patent's explanation of what it means by “chatbot” would not have been available to Mr. Symons nor Mr. Baetens in October 2017 (before the application was submitted or made publicly available) and would not be the basis upon which a POSITA would interpret their writings and showcase demonstrations. Specifically, it was well known in the industry in 2017 that not all chatbots possessed the capability natural language processing, nor required that capability. Many chatbots at that time could be used for simple data entry (equivalent to a data entry form), or be “rules based” that would only understand a limited number of user requests or interactions.

187. Thus, in my opinion, a POSITA as of November 5, 2017 would not understand that the chatbot shown in the showcase presented by Mr. Symons in the Symons Video, and described in the Symons Blog and the Baetens Blog necessarily used a “conversation” in a “natural language interface”. Instead, it would have been closer to a simple chatbot, which Dr. Beigi refers to as a “form”. (Ex2003, 199:11-

16). Since Dr. Beigi has not presented any argument other than itself evidences the claimed “conversation” and “natural language interface” he has failed to meet his burden of establishing that Symons discloses element [a].

b. [1-PRE], [11-PRE] and [18-PRE] – Neither Symons nor Williams discloses or renders obvious “defining an automation process, ...”

188. Each of the Preambles of the independent claims provide the respective method (claim 1), computerized apparatus (Claim 11) and non-transitory computer readable medium (claim 18), are **“for defining an automation process”, which “is configured to be invoked in response to a conversation of a user with a natural language interface”**. (Claim 1, 22:15-18; Claim 11, 23:23-26; Claim 18, 24:23-26).

189. In my opinion, a POSITA as of November 5, 2017 would understand that neither Symons (in the various forms presented) nor Williams teach a process where a user is “defining an automation process” as that term is used in the context of Claims 1, 11 and 18 of the ’732 Patent, nor in the context of its description. Despite Dr. Beigi’s assertions, he does not show otherwise. ’732

190. As discussed above (*see* pars. 101-107, *supra*), in my opinion, a POSITA as of November 5, 2017 would understand that the term “defining” as used in the context of the ’732 Patent means a process of enabling non-programmers and novice users to create either an automation process (in the context of defining an automation process) or a conversation (in the context of defining a conversation) that

will be utilized by a different software (e.g., the natural language interface which implements the conversation and invokes the automation processes for the computer software).

191. I note that Dr. Beigi offers no construction of the term “defining” (nor any other claim term) in his analysis.

192. Rather than identify where in the Symons Blog, and/or the Symons Video, the primary reference(s), the process of **defining an automation process** is disclosed (because it is not), Dr. Beigi asserts what appears to be an implied inherency argument:

“[t]he automation process and its functionality (automatically generating an email signature) **must have been defined**. Without being defined, Symon’s RPA bot would not exist, and it would not be able to automatically generate an email signature.”

(Ex1003, ¶ 79).

193. As discussed below, I disagree with Dr. Beigi’s contention of what “must have” happened.

194. In the alternative, Dr. Beigi argues, “[i]f for some reason Symons does not disclose defining an automation process, it would have been obvious to a POSITA at the time of the ’732 priority date.” (Ex1003, ¶80).

195. In performing his analyses, Dr. Beigi in his Declaration does not recognize the technical problems and solutions which the '732 Patent seeks to address and present, as discussed above. Nor does Dr. Beigi offer a specific construction of what “defining” “an automation process” means in the context of the '732 Patent.

196. In particular, with respect to “defining automation processes”, the '732 Patent explains:

One technical problem dealt with by the disclosed subject matter is to provide for a user-friendly manner of defining functionality of chat bots. In particular, defining automation processes to be invoked by chat bots, either dedicated chat bots, such as implemented on a target system where the functionality is invoked, or even using third-party services, such as FACEBOOK MESSENGER™ are the communication platform for the chat bot service, which later invokes the automation process itself on the target system.

Another technical problem may be to enable defining automation processes in a manner that enables them to be implemented even if changes are performed to the underlying platform. For example, it may be desired that the automation process will continue working even in the face of layout modifications of the front-end of the program or website. In some cases, it may be desired to be able to identify elements selected during the definition of the automation process during

execution thereof. The identification may be a non-trivial task if no unique identifier exists, as may be the case in many instances. Still, it may be desired to be able to identify such element correctly so as to apply the actions defined by the automation process.

One technical solution provided by the disclosed subject matter may be to use a natural language interface to receive input from the user, and based thereon, select an automation process to be executed. The automation process may be executed in a manner that manipulates the GUI of the target system, in a similar manner to the manner in which the user operates. As a result, **definition of the automation process may be defined by non-programmers.**

Defining the automation process based on performing actions in the GUI enables the automation process to perform any functionality that the user can perform, without relying on dedicated APIs and without requiring any line of code. The parameters of the conversation, as well as the flow of the automation process, may be defined using a point and click editor, or other user interface that can be used by any non-programmer users.

(Ex1001, 4:59-67, 5:62-6:10 (emphasis added)).

197. In my opinion, a POSITA as of November 5, 2017 would understand that the key aspect of the “defining an automation process” is that it be in “a user-friendly manner”, “enables them to be implemented even if changes are performed to the underlying platform” and most importantly, that the “definition of the

automation process may be defined by non-programmers.” (Ex1001, 4:59-61, 5:29-33). The ’792 Patent provides examples of such definition process “using a point and click editor, or other user interface that can be used by any non-programmer users.” (*Id.*, 6:7-10). Significantly, in my opinion, a POSITA as of November 5, 2017 would understand that the ’732 Patent teaches a key advantage of the user friendly “defining an automation process” is to enable the definition process to utilize the “GUI” of the target system, and “without requiring any line of code”.

198. With respect to defining the “automation process”, the ’732 Patent further explains that an “editor” software may be used:

The automation process may be defined by a user of an editor, such as system operator. The definitions of the automation process may be stored in a database and retrieved on the client-side for execution. The automation may be a flow that comprises steps in a predefined order. The flow may comprise control flow steps, such as branching steps that depend on conditions. After a step is executed, a succeeding step in the flow may be executed.

In some exemplary embodiments, the following actions can be **defined in the editor** and will then cause the corresponding steps to occur in an automation:

(Ex1001, 11:27-37 (emphasis added)).

199. In short, as I explained above (*see* pars. 101-106, *supra*) “defining an automation process” refers to the process of 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. Using a user friendly, GUI-based editor disclosed by the ’732 Patent would be one way of doing so.

200. As discussed in Paragraph 151, *surpa*, Symons does not disclose or suggest how the automation process was programmed to be performed, other than stating that collected “information gets passed on to the RPA robot” which “triggers the RPA bot”. (Ex1004, at 2; Ex1006 at 10). The teaching in Williams confirms that there are a number of ways in which RPAs could be generated, including “hardcoding”, which was in fact the most common way it was done at the time of the invention, in my experience. As Williams explains, “[o]ne can hard-code these rules [concerning processes] into the RPA products today”. (Ex1011, at 4). The ’732 Patent was meant to be an improvement over this alternative. (Ex1001, 4:59-61, 5:29-33). Accordingly, in my opinion, a POSITA as of November 5, 2017 would understand that it is not inherent that an automation process in Symons and/or Williams would necessarily be generated as claimed by the ’732 Patent.

201. Indeed, the examiner during prosecution of the parent, which ultimately issued as the U.S. Patent No. 11,558,317 (challenged by WhatFix in IPR 2024-00065), the Examiner recognized that claims directed to “defining an automation process to be invoked in response to a conversation of a user with a natural language interface” and “using a natural language interface to input data or execute functionality” are two different inventions, which provoked a restriction requirement. (Ex1002, IPR2023-01368, Requirement for Restriction / Election, Dated June 7, 2019, Prosecution History of ’317 Patent, at 196). Dr. Beigi’s inherency analysis fails to appreciate this difference, and does not address the distinction drawn by the Examiner. Indeed, during his deposition, Dr. Beigi testified that he believed that the claims of ’732 Patent and ’664 Patent are directed towards the same invention. (Ex2003, 174:12-175:9 (“Q: Well, the specifications [of the ’664 Patent and ’732 Patent] are the same. But the inventions are different, right? A. I don’t believe so. Q. Really? A. Yes.”)).

202. By a similar token, Dr. Beigi provides a flawed rationale to support his obviousness analysis. Dr. Beigi’s argument focuses solely on explaining that Williams discloses a “chatbot-RPA bot system[]” that is capable of “handling multiple requests” (Ex1003, ¶81), and that, accordingly, “a chatbot-RPA bot system may be expanded to handle multiple requests with a reasonable expectation of

success” (*Id.*, ¶ 82). However, Dr. Beigi fails to show that Symons defines an automation process, at least since Symons intentionally provides no information on how either the email signature generator or the chatbot system operates. (*See* Ex1009, 2 (“we can’t share much about the results of our joint efforts (yet)”)). As no one know how Symons operates (see Ex2003), it is impossible to say that there would have been a “reasonable expectation of success” in modifying Symons to handle multiple requests as Dr. Beigi’s proposes.

203. In any event, putting aside whether Dr. Beigi’s analysis is accurate or not (which in my opinion it is not), the modification would not overcome the gap in Symons that there is no disclosure of “defining” the automation process, whether it is only one (as disclosed in Symons) or multiple (as Dr. Beigi purports would be obvious in view of Williams). As such, the proposed modifications is irrelevant and does not cure this defect.

204. At the outset, Dr. Beigi’s proposed combination is unsupported by Williams, which does not discloses defining an automation process.

205. Firstly, with respect to Dr. Beigi’s contention that according to Williams, “a chatbot-RPA system may be expanded to handle multiple requests with a reasonable expectation of success”, this is not recited or suggested by Williams. Neither Symons nor Williams suggest to use a single chatbot-RPA to handle multiple

requests at once in the same conversation thread. Instead, Williams is directed at most to using chatbots “in a variety of other processes and across industries” (Ex1011, at 3), without relating to a single chatbot-RPA handling multiple requests at once.

206. Secondly, Dr. Beigi’s contention that defining an automation process would have been obvious to a POSITA as of November 5, 2017 since Williams discloses “allow[ing] business process owners to draft, create and amend rules and policy changes outside of the RPA product using normal conversation text. The robot then interacts with WPML to look up and apply rules related to automated process” is improper, at least since the cited description of Williams merely relates to Watson Policy Management Library (WPML), a library of policies that is drafted by business process owners and can be used as part of the automation process. This does not relate to defining an automation process (or a conversation, for that matter).

207. Thirdly, Dr. Beigi’s contention that: “[t]he combination of Symons and Williams results in a Chatbot-RPA bot system capable of handling more than a user request for automated generation of an email signature. The combination of Symons and Williams would result in a Chatbot-RPA bot system that can handle other requests, such as automated generation of an electronic letterhead, automated generation of an electronic invoice, automated generation of an electronic flyer,

automated generation of electronic business cards, etc” (Ex1003, ¶ 81) is erroneous, at least since neither of Symons nor Williams suggest to use a single chatbot-RPA to handle multiple requests at once in the same conversation thread. Symons describes a chatbot for the generation of the email signature (and nothing else), while Williams describes a chatbot for providing to suppliers a status of their payments. Symons does not teach or suggest that the Cronos email signature generator can do anything other than generate an email. Moreover, it is also irrelevant to the claim term of “defining an automation process”.

208. At the core, Dr. Beigi is simply reasserting his inherency argument by conclusively asserting, without providing any support, that “[t]he automation process would need to be defined for the expansion to handle multiple requests.” (Ex1003, ¶82). 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. Therefore, a POSITA as of November 5, 2017 would reach the conclusion that if Symons were modified to handle multiple automation processes (which is not an obvious adjustment in my opinion), it would not necessarily require Symons to “define” those processes any more than handling a single process as disclosed. Symons explains that after information is gathered by the chatbot, it “gets passed on to the RPA robot” (Ex1004, 2), and there is no reason

that the process of defining the conversation needs including defining an automation process. Further, the example of additional processes that Dr. Beigi identifies, such as generating a letter head, would not need to gather any additional or different information than currently being gathered by Symons, and could simply be added to the existing process shown as additional steps in the process, without defining any automation process. This assertion fails for the reasons discussed above with respect to the argument that defining an automation process is inherent in Symons.

209. Dr Beigi further misquotes Williams as allegedly reciting in the context of expanding the capabilities of chatbot systems to handle multiple requests. Specifically, Williams states that “[T]he ability to address these technical challenges will unlock significant additional value within RPA-enabled business operations.” (*Id.*, 3). Dr. Beigi claims this quote is in the context of expanding chatbot systems to handle multiple requests, whereas it actually pertains to solving challenges with RPA implementations, irrespective of any chatbot.

210. Accordingly, to the extent that the preamble of claims 1, 11, and 18 is considered to be limiting, a POSITA as of November 5, 2017 would understand, despite Dr. Beigi’s assertions, that neither Symons nor Williams, alone or in combination, discloses, expressly or inherently, or renders obvious the preamble of such claims.

c. 1[a, b, d], 11[a, b, d], 18 [a, b, d] – Neither Symons nor Williams discloses or renders obvious the process of generating the claimed conversation by “defining”, “associating” and “publishing”

211. Each independent claim of the '732 Patent requires a 3-step process generating the claimed conversation including first, “defining a conversation” (element [a]), then, “associating the conversation with the automation process” (element [b]), and finally, “publishing the conversation” (element [d]). (Ex1001, 22:19-39, 23:23-49, 24:30-50).

212. Symons fails to disclose or render obvious any details of how the conversation shown in the Symons Video was generated, let alone if it was generated by using the three claimed steps in the order as claimed. At most Dr. Beigi makes an incomplete inherency argument that since the conversation purportedly exists it must have been “defined” (Ex1003, ¶¶ 78, 88) “associated” (*Id.*, ¶ 90) and “published” (*Id.*, ¶¶ 94-95). Putting aside that Dr. Beigi has adopted without support an unduly broad construction of these processes, he offers no teaching in either reference to support that these three 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. As discussed in the Comments shown in Ex2005, contemporary commentaries noted this complete lack of teaching, which as the Baetens Blog confirmed, was intentionally opaque. The fact that these

processes (even under Dr. Beigi's overly broad unstated construction) are not inherent is confirmed by Williams that noted that such a conversation could be hardwired using programming and code (a problem the '732 Patent sought to address with the claimed invention), and 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.

213. I also note that while the Ground is based on a combination of Symons and Williams, neither the Petition nor Dr. Beigi rely upon anything more than the fact that Symons has a conversation to support these aspects of the claims, so there is no proposed modification based on Williams that is being relied upon for this purpose.

214. Importantly, Symons provides absolutely no disclosure on how the conversation depicted in the video was created, tied to the asserted automation process, or added to the natural language interface. For example, Symons does not show the step of "defining a conversation", but instead only shows a specific implementation of a conversation. Similarly, the conversation disclosed in Symons does not show the steps of "associating the conversation" with the generation of the email signature or the step of "publishing the conversation" to the chatbot. Instead, as contemporary comments show, the mechanisms of creating the conversation were

unclear: “which rpa tool and chatbot tool are you used and give description to do this automation” (Ex2003). This opaqueness is not by accident, as Dr. Baetens explained, “we can’t share much about the results of our joint efforts (yet)”. (Ex1009, 2).

215. This lack of disclosure is made more apparent since the ’732 Patent does not claim the steps of “defining a conversation”, “associating the conversation”, and “publishing the conversation” in any order, but instead, requires them to be performed in order, which Symons does not disclose.

216. As discussed above, a POSITA as of November 5, 2017 would understand that the ’732 Patent requires that a conversation first be “defin[ed]”, then “associate[d] with the automation process”, and then finally “publish[ed]”. A POSITA would also understand that Symons does not disclose these steps, and does not disclose performing them in the order required by the claims. It merely discloses an interaction a user has with a chatbot, without providing any information on how the chatbot was generated.

217. In the face of this clear lack of disclosure, Dr. Beigi instead makes various assertions that, because Symons shows a natural language conversation, it meets these claimed elements. For example, with respect to element [a], he asserts in a conclusory manner that the conversation “must have been defined” because, otherwise, “Symons’ chatbot would not exist and it would not be able to engage in a

conversation with the user.” (Ex1003, ¶88). With respect to element **[b]**, he provides the sparse explanation that because the “values obtained from the user” by the Chatbot in Symons are then “used in the automation process” to “automatically fill in the input fields of the email signature generator”, the “conversation is collecting information for the automation process, and is thus associated with the automation process.” (Ex1003, ¶ 90).

218. In the same vein, Dr. Beigi asserts that element **[d]** is met because “Symons publishes the conversation between the chatbot (natural language interface) and the user, which is accessible to a user via the natural language interface”, referencing the actual screen that is captured in the video. (Ex1003, ¶ 94). Per Dr. Beigi, the displayed questions “enable the user to interact with the natural language interface in accordance with the conversation.” (*Id.*, ¶ 95).

219. I disagree with Dr. Beigi’s varied assertions that elements **[a]**, **[b]**, and **[d]** necessarily flow from Symons disclosure of the user interacting with a chatbot. Dr. Beigi confuses the fact that a conversation is displayed and appears to invoke an automation process with the actual elements of the claims. The 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. (Ex1001, 22:33-35). The claimed invention is directed to how the

conversation is generated, not when it is implemented. As the Examiner noted during the prosecution of U.S. Patent 11,558,317, these are two different inventions (and hence processes). (Ex1002, IPR2023-01368, Requirement for Restriction / Election, Dated June 7, 2019, Prosecution History of '317 Patent, at 196).

220. In my opinion, a POSITA as of November 5, 2017 would understand that the display provided in Symons would not inherently be disclosed using the novel steps of the '732 Patent of “defining”, “associating... with an automation process” or “publishing” the conversation, in that order. For example, rather than being defined by a user in a user-friendly manner, practicable by novice and programmers (e.g., using a GUI), the display may have simply been the result of an editor in a video editing software. Or, 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. For example, the bot may simply be waiting for an instruction which included the word “signature” (and even that is not necessarily the case), before beginning to ask hard-coded questions about the user’s name, role, etc. Indeed, simply hardwiring in code a conversation is one of the problems the claimed invention seeks to overcome – to allow non-programmers to create chats. (*Id.*, 5:29-33).

221. It would make no sense to create an association process when there is only one automation process to associate. In my opinion, a POSITA as of November 5, 2017 would understand that this would be an unnecessary and wasteful use of programming resources.

222. In short, Dr. Beigi's analysis confuses the existence of a conversation being disclosed in the prior art, with the details of how such a conversation was generated. As discussed, the claim requires a specific order of operations, including “defining” the conversation, then “associating” the conversation with an automation process, and then “publishing” the conversation. Because conversations can be generated without performing each of these steps, let alone in different orders, in my opinion, a POSITA as of November 5, 2017 would not conclude that these steps were necessarily performed to generate the conversation disclosed in Symons. Indeed, Dr. Beigi stated **“So I don’t think that there’s anything inherent where you would have to say specifically, this one has to happen until I go do that one”** in response to whether “there’s nothing inherent [in] the order of defining versus associating just because a conversation exists”. (Ex2003, 243:11-244:3). Thus, the order of these claim elements were not inherently disclosed.

223. Dr. Beigi’s also asserts element [a] would have been obvious, but his analysis is similarly flawed. Dr. Beigi states that, even if not disclosed, “it would

have been obvious” to define a conversation “because a chatbot would be better able to interact with the user when the conversation (e.g., which question to ask) is defined.” (Ex1003, ¶ 89). Symons discloses simply one process for a showcase – generating a signature – and asks the questions that are necessary to carry out that process. In my opinion, a POSITA as of November 5, 2017 would simply hardwire the questions to ask to carry out that process, since it would be the simplest and quickest way to achieve the result. I do not understand why Dr. Beigi would suggest a POSITA would believe a hardwired chatbot like that shown in Symons “may not be able to accurately respond to the user input,” and might “not know what to do with the user input” (such as fill in the name input field). (Ex1003, ¶ 89). The questions asked are specific and offer no ambiguity that needs to be addressed in the manner suggested by Dr. Beigi. As discussed, Symons does not disclose a natural language interface, and Dr. Beigi’s analysis fails to address why “defining a conversation **to be implemented by a natural language interface**” would have been obvious.

224. Dr. Beigi’s contention that element [b] is disclosed, is similarly flawed. Not only does Symons fail to describe a step of associating the defined conversation with the defined automation process, but this step would serve no purpose in the

context of Symons. Since Symons describes, at most, a single conversation and a single process, there is no rationale for performing an associating step.

225. Accordingly, in my opinion, a POSITA as of November 5, 2017 would understand, despite Dr. Beigi's assertions, that neither Symons nor Williams, alone or in combination, discloses, either expressly or inherently elements 1[a, b, d], 11[a, b, d] or 18[a, b, d] of the '732 Patent. Further, in my opinion, the analysis Dr. Beigi performed is incomplete and does not provide a sufficient basis to render elements 1[a, b, d], 11[a, b, d] or 18[a, b, d] of the '732 Patent obvious.

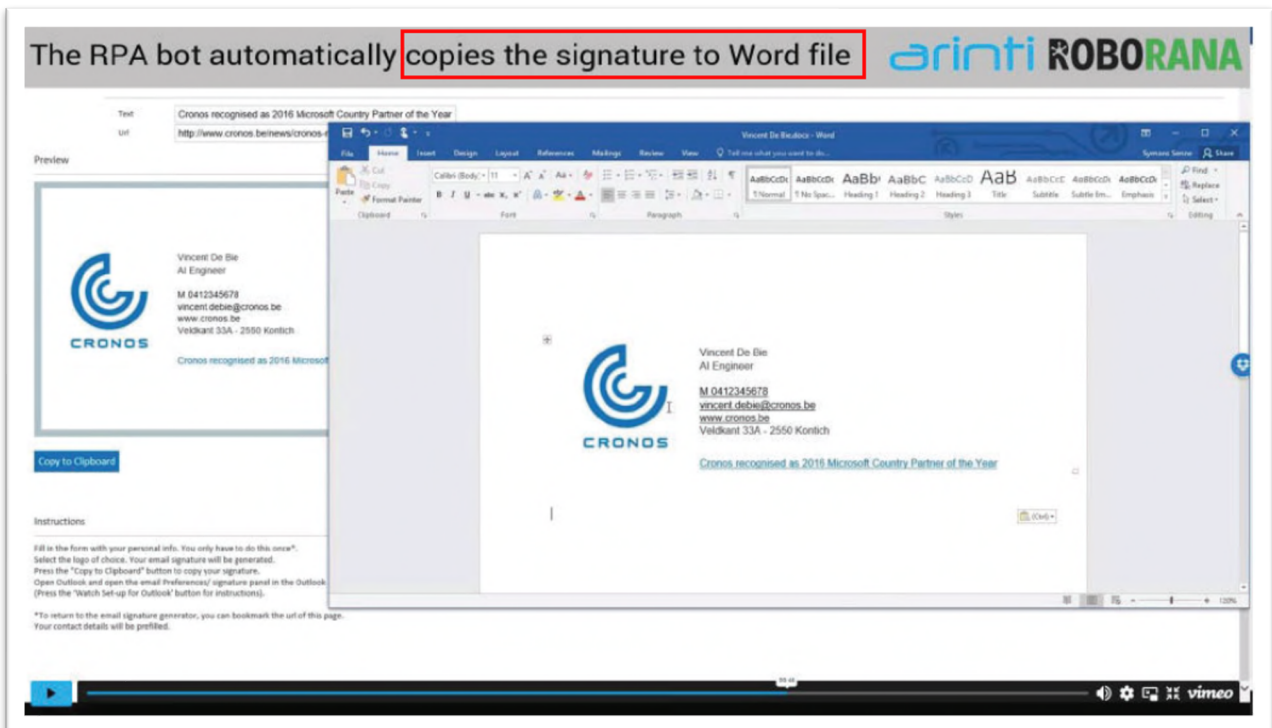
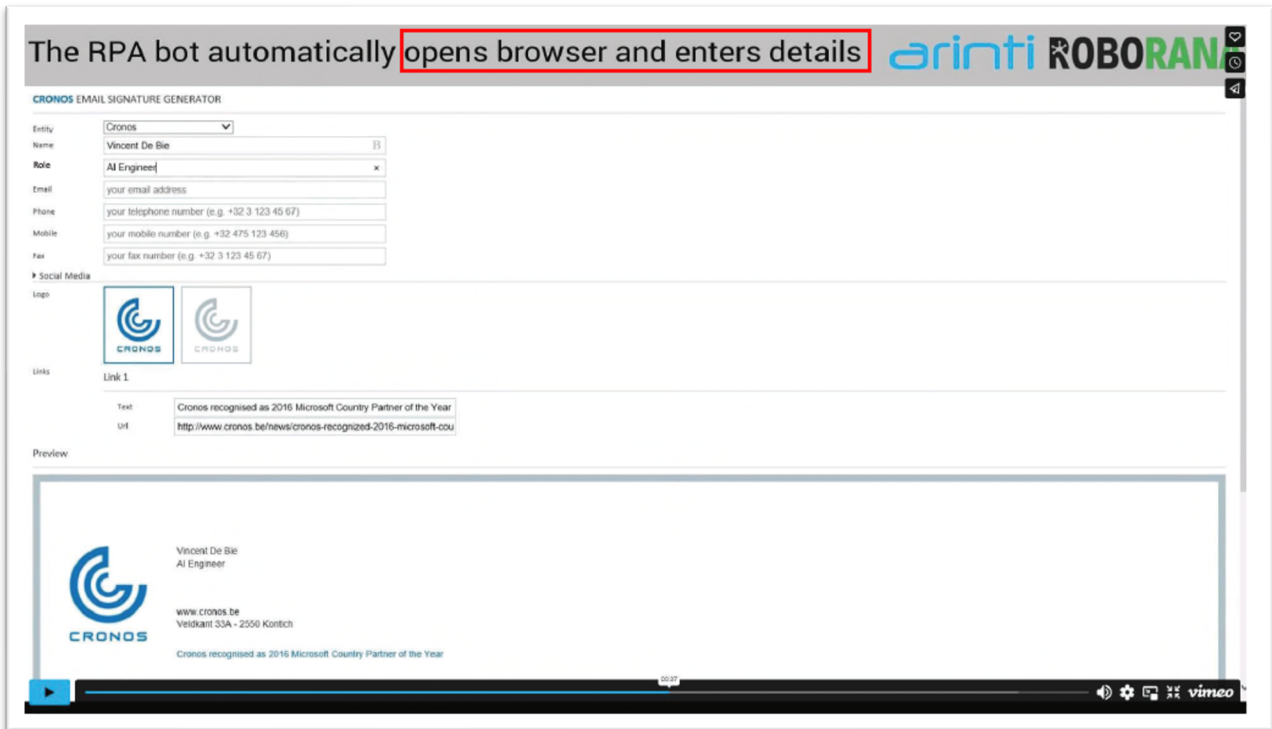
d. 1[c], 11[c], 18[c] – Neither Symons nor Williams discloses or renders obvious “the automation process configured to utilize a displayed user interface of a computer program to simulate sequence of interactions with the displayed user interface of the computer program and execute a functionality of the computer program”

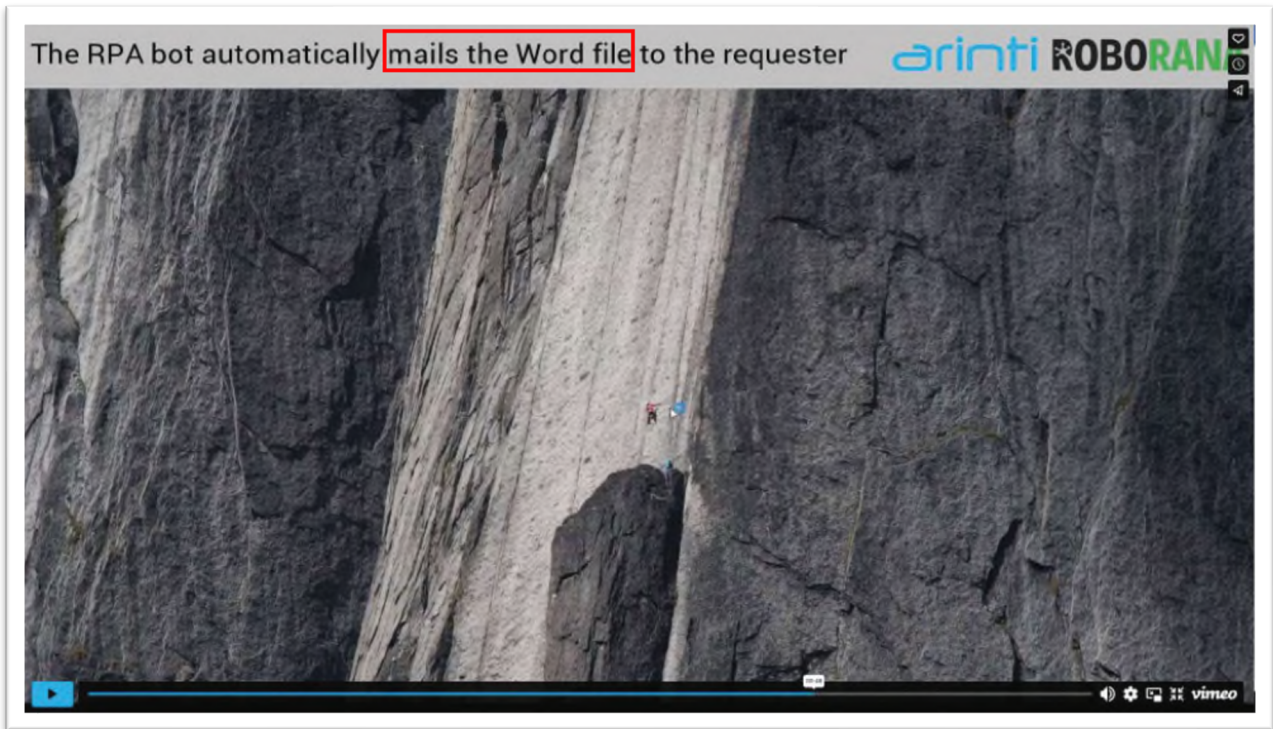
226. In my opinion, neither Symons nor Williams, alone or in combination, discloses or renders obvious element [c], “wherein the automation process is configured to utilize a displayed user interface of **a computer program** to simulate sequence of interactions with the displayed user interface of **the 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”. (Ex1001, 22:25-31; 23:35-41; 24:36-42). In my opinion, because the

claim uses the phrase “the computer program” and not “one or more computer programs” or “computer programs”, a POSITA as of November 5, 2017 would understand that each instance of the “computer program” refers to the same “computer program” and each instance of “displayed user interface” refers to the same “displayed user interface”. Thus, the claim element requires that the sequence of interactions which are simulated as part of the automation process to relate to a single computer program.

227. According to Dr. Beigi, in connection with the preamble, the “automation process” is “the RPA robot ... automatically generat[ing] the signature, sav[ing] it, and email[ing] it back to the requester.” (Ex1003, ¶ 78, citing Ex1004, 2). Grammatically, the “automation process” in the preamble provides antecedent basis for “the automation process” in this claim element. In my opinion, a POSITA as of November 5, 2017 would understand that the automation process “configured” in element [c] must be the same automation process as defined in the preamble.

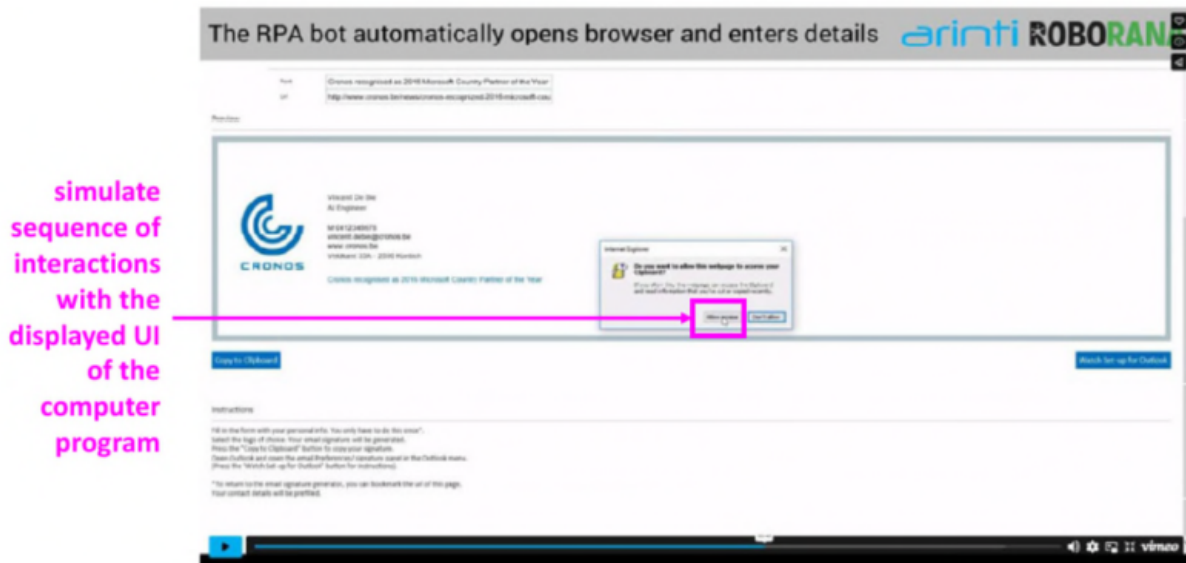
228. Unfortunately, Dr. Beigi in discussing how the automation process is configured fails to take into consideration the fact that the RPA bot invokes at least three separate programs with three distinct user interfaces: (1) a “browser” running the Cronos email signature generator, (2) Microsoft Word and (3) an email client like Outlook (Ex1006, 11-19) (not counting the modal window to “Allow access”):





(Ex1006, 11, 15,16 (red boxes added)).

229. Thus, the sequence of simulated interaction shown in the Symons Video is with at least three computer programs (the browser running Cronos, Word, and the email client) and user interfaces associated with at least two of these programs (the browser in Cronos and the user interface in Word). The sequence of interactions also includes an interaction with the user interface of a modal window of Windows to “Allow access” for copying, which Dr. Beigi explicitly annotates as used in the sequence of interactions:



(Ex1003, ¶92). In my opinion, a POSITA would understand this to be a fourth user interface of a fourth computer program.

230. I note that Dr. Beigi does not assert that Williams discloses this element or renders it obvious in combination with Symons.

231. Accordingly, in my opinion, a POSITA as of November 5, 2017 would understand, despite Dr. Beigi's assertions, that neither Symons nor Williams, alone or in combination, discloses, either expressly or inherently, or renders obvious, elements 1[c], 11[c] or 18[c] of the '732 Patent.

3. Claims 2, 12, 19 – Neither Symons nor Williams disclose or render obvious “wherein said defining comprises determining a conversation flow, wherein the conversation flow defines an order between conversation elements, wherein the conversation elements comprise at least a

question element and an action element, wherein the action element is associated with automation process.”

232. Representative Claim 2 provides: “The method of claim 1, wherein said defining comprises determining a conversation flow, wherein the conversation flow defines an order between conversation elements, wherein the conversation elements comprise at least a question element and an action element, wherein the action element is associated with automation process.” Claim 12 and 19 feature the same elements except that Claim 12 depends from Claim 11 and Claim 19 depends from Claim 18. (*See* Ex. 1003, ¶127).

233. At the outset, I note that Claim 2 is dependent on Claim 1 and thus, to the extent that Symons and Williams, alone or in combination, fails to disclose or render obvious Claim 1, these references likewise fail to do so for Claim 2. Moreover, despite Dr. Beigi’s assertions, these references do not teach the additional elements of Claim 2. This same analysis applies with respect to Claims 12 and 19 with respect to Claims 11 and 18.

234. Claim 2 requires not only that the conversation be defined as set forth in Claim 1, but also have a “conversation flow” which defines at least a question element and an action element, as well as the order of such elements, where the action element is associated with the automation process. As noted above, Symons does not disclose how its conversation was generated, let alone if it defined a

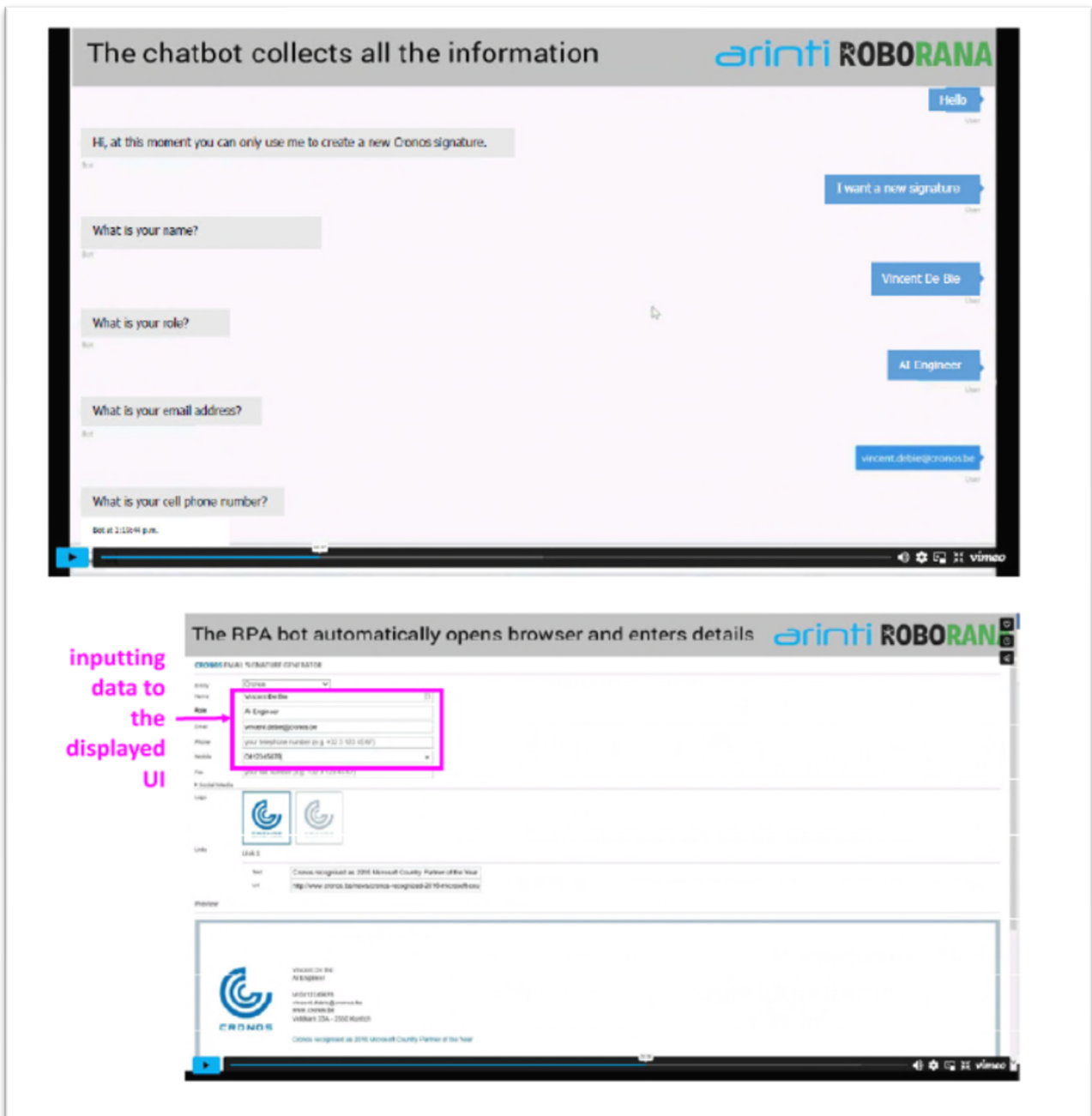
question element or an action element, or the order in which such elements are presented.

235. In my opinion, a POSITA as of November 5, 2017 would understand that neither Symons nor Williams teaches determining a conversation flow which an action element or the order between conversation elements, either alone or in combination.

236. Dr. Beigi identifies as “question elements” Symons’ information requests, such as the user’s name, job role, and other information, and identifies as action elements. (Ex1003, ¶ 98). Dr. Beigi fails to identify how these “question elements” were defined in Symons. No doubt, this is because Symons does not disclose how the conversation was created. (Ex2003, 221:3-5 (“which rpa tool and chatbot tool are you used and give description to do this automation”)). In my opinion, a POSITA as of November 5, 2017 would also understand that the conversation shown in Symons could be generated without a user defining these question elements. For example, a POSITA would understand that a conversation could be generated on an ad-hoc basis based on the automation process to be invoked.

237. Moreover, Dr. Beigi fails to identify any disclosure in Symons which shows an order between the various conversation elements he identifies, instead

asserting that “the order of conversation elements in Symons’ conversation flow follow the order of inputs fields in the email signature. Hence, the conversation flow defines an order between conversation elements.” (Ex1003, ¶ 99). Dr. Beigi provides the following illustration to demonstrate his point:



Ex1003, at 51

238. However, in my opinion, a POSITA as of November 5, 2017 would understand that simply because Symons displays questions sequentially (first, “What

is your name?”, next “What is your role?”, then “What is your email address?” and then “What is your cell phone number?”), does not mean that there is necessarily a user defined order. For example, the system may automatically assign the order based on fields being input as part of the RPA bot, without any definition being provided by a user.

239. Dr. Beigi’s analysis with respect to “action elements” is even more problematic. Dr. Beigi does not expressly identify “action elements” of the conversation, but only “actions” of the RPA bot – “the RPA bot inputting the user-provided answers.” (Ex1003, ¶ 98). To the extent that Dr. Beigi is identifying the actions taken by the RPA bot as the “action elements”, he is confusing the actions taken by the bot with the process of defining a conversation that includes an action element that is specifically defined as part of the conversation process.

240. To the extent that Dr. Beigi is arguing that an action element is inherently defined because the RPA bot is capable of generating an email signature, he is mistaken. As I discussed above, the system of Symons is meant to perform a single purpose, i.e., “automate the process of creating an email signature” (Ex1004, 2) (and the conversation shown above explicitly states “you can only use me to create a new Cronos signature.” (Ex1006, at 5)), and it would not be necessary to disclose defining action elements in order to achieve this purpose, let alone action elements

like the “Add Action” Button shown in the ’732 Patent with respect to FIG. 5B. Further, since the Symons Blog explains that collected information is merely “passed on to the RPA robot” (Ex1004, 2), a POSITA as of November 5, 2017 would understand that the conversation itself does not necessarily have an action that would invoke the automation process. Accordingly, in my opinion, Dr. Beigi has not shown that a POSITA as of November 5, 2017 would understand that Symons teaches defining an action element.

241. Dr. Beigi also asserts that defining a conversation by determining a conversation flow would be obvious in view of Williams. (Ex1003, ¶ 100). The problem is that Williams provides no disclosure on how to define a conversation. Indeed, Dr. Beig does not even offer Williams to meet element [a]. (Ex1003, ¶ 83-89). Dr. Beigi further asserts that Williams teaches a “chatbot that engage in natural language dialog with a user to determine the user’s intent” (Ex1003, ¶ 100), and a “a POSITA would have been motivated to have a chatbot that discerns the user’s intent (the nature of the call) so that the RPA bot is able to handle multiple requests” (Ex1003, ¶ 101).

242. I disagree with Dr. Beigi’s conclusion that such a combination would have rendered this claim element obvious. By way of illustration, Dr. Beigi suggests that one of the processes taught by Williams is generating letterhead (Ex1003, ¶

103), but this would not require the conversation to be changed at all or defining of a separate conversation flow, since the information for letterhead is the same as the information for an email signature.

243. More importantly, the proffered combination is irrelevant for purposes of claim 2, as it does not teach defining a conversation via determining a conversation flow. Put simply, selecting a conversation based on user input is different than determining a conversation flow as part of defining a conversation to be implemented. Indeed, Claim 5, unlike Claim 2, expressly requires that “the natural language interface is configured to select a conversation based on a user intent matching the one or more terms ... based on interactions of the user with the natural language interface.” (Ex1001, 22:59-64).²

244. Accordingly, in my opinion, a POSITA as of November 5, 2017 would understand that, despite Dr. Beigi’s assertions, neither Symons nor Williams, alone or in combination, discloses, either expressly or inherently, or renders obvious Claim 2 of the ’732 Patent.

² I note that Dr. Beigi does not assert that Symons / Williams render Claim 5, which discusses “select[ing] a conversation . . . based on user intent” to be invalid. Likewise, the Board has not instituted trial for Claim 5 in view of Symons and Williams.

4. Claims 3, 13 – Neither Symons nor Williams disclose or render obvious “the conversation elements compris[ing] at least one of: a message element and a condition element.”

245. Representative Claim 3 provides: “The method of claim 2, wherein the conversation elements comprise at least one of: a message element and a condition element.” Claim 13 has the same elements except that it depends from claim 12. (*See* Ex1003, ¶127).

246. At the outset, I note that Claim 3 is dependent on Claim 2, which is in turn dependent on Claim 1 and thus, to the extent that Symons and Williams fail to disclose or render obvious Claims 1 or 2, these references likewise fail to do so for Claim 3. Moreover, despite Dr. Beigi’s assertions, these references do not teach the additional elements of Claim 3. Similarly, the same logic applies with respect to Claim 13, which depends from Claim 12, which in turn depends from Claim 11.

247. As a preliminary matter, Dr. Beigi and I disagree as to the proper construction of the phrase “at least one: a message element and a condition element.” He asserts that “having one (a message element, a condition element, or both) satisfies the claim.” (Ex1003, ¶105). I disagree.

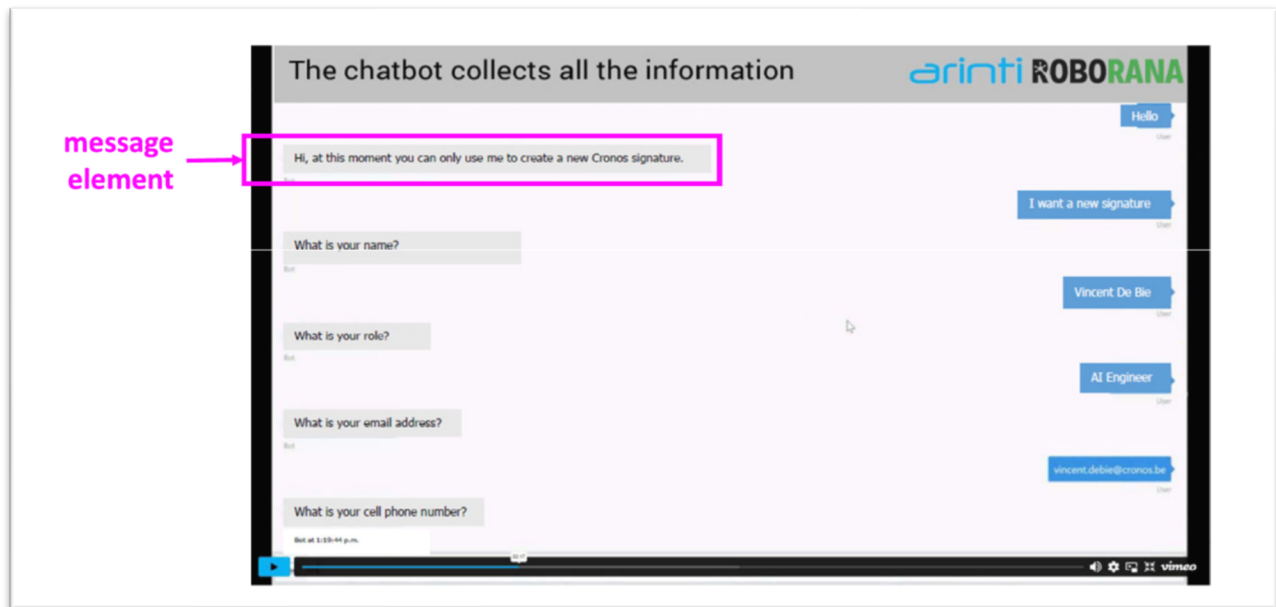
248. In my opinion, as discussed above (*see* pars. 126-134, *supra*), consistent with the grammatical principles outlined by the Federal Circuit and the disclosure of the ’732 Patent, a POSITA as of November 5, 2017 would understand that “at least one of: a message element and a condition element” requires at least

one message element and at least one condition element. Thus, in the first instance, Dr. Beigi is misapplying the scope of Claim 3 in his analysis.

249. Further, since Claim 3 depends upon Claim 2, the claimed conversation must have at least 4 elements: a question element and an action element from Claim 2 plus a message element and a condition element from Claim 3.

250. In any event, while Dr. Beigi asserts that Symons discloses conversation elements comprising “a message element” and that Williams provides “perform[ing] actions based upon . . . conditional logic” (Ex1003, ¶106), his analysis is severely flawed.

251. Dr. Beigi implicitly recognizes that Symons does not disclose a message element **and** a condition element, and does not even attempt to point to a condition element in Symons in his markup, only pointing to a message element:



(Ex1003, p. 56)

252. However, Dr. Beigi’s reliance on the disclosure of Williams to fill this gap is misplaced. Dr. Beigi quotes Williams as stating “[t]hey can monitor and survey systems and business processes and initiate robotic work dispatching **to perform actions based upon** observations and **conditional logic**.” (Ex1003, ¶106). However, he offers no insight into defining a conversation using a conditional element. At best, Williams teaches that executing an automation process (not the signature generation set forth in Symons) could include conditional logic. This does not come close to filling the gap left by Symons, which requires a conditional element in the defined conversation.

253. This combination also fails to explain why the single purpose showcase of Symons would need to be modified to include a condition element. Even assuming Williams teaches a conversation can use “conditional logic”, Dr. Beigi has failed to provide any motivation or rationale for modifying the conversation shown in the Simons Video to include conditional logic. This makes the obviousness combination deficient.

254. Thus, while Dr. Beigi states that “Symons-Williams discloses claim 3”, he fails to perform the required steps of an obviousness analysis to reach that conclusion, including identifying how the conversation in Symons would have to be modified based on the teaching in Williams, and any reason why a POSITA as of November 5, 2017 would be motivated to make such a modification.

255. Accordingly, in my opinion, a POSITA as of November 5, 2017 would understand that, despite Dr. Beigi’s assertions, neither Symons nor Williams, alone or in combination, discloses, either expressly or inherently, or renders obvious Claim 3 of the ’732 Patent.

5. Claims 4, 14– Neither Symons nor Williams disclose or render obvious “wherein the conversation elements comprise a second action element associated with a second automation process, whereby the natural language interface is configured to selectively invoke either the automation

**process or the second automation process based on
interaction with the user.”**

256. Representative Claim 4 provides: “The method of claim 2, wherein the conversation elements comprise **a second action element associated with a second automation process**, whereby the natural language interface is configured to selectively invoke either the automation process or the second automation process based on interaction with the user.” Claim 14 has the same elements except that it depends from claim 12. (*See* Ex. 1003, ¶201).

257. Dr. Beigi does not argue that Symons discloses this limitation, and indeed agrees that “Symons is silent on whether its conversation elements comprises a second action element associated with a second automation process.” (Ex1003, ¶ 107). Instead, Dr. Beigi argues it would have been obvious to modify Symons because “Williams’ system handles multiple user requests”, pointing specifically to the examples of “setting up a payment for the payment transaction” and “a second automation process for automatically filling in an electronic medical record for the healthcare record transaction.” (Ex1003, ¶ 109). Setting aside whether a POSITA as of November 5, 2017 would have been motivated to modify Symons in view of Williams to handle multiple transactions (which, as suggested, it would not), Dr. Beigi fails to explain why a POSITA would have been motivated to modify the

Symons conversation to include these actions, given that Symons is directed to providing a chat for an email signature.

258. In any event, even if a POSITA would have been motivated to modify Williams and Symons, Dr. Beigi has not shown that “setting up a payment for the payment transaction” and “a second automation process for automatically filling in an electronic medical record for the healthcare record transaction” would be two “action elements” in the same conversation, or even in the same conversation as the signature generation and would be “selectively invoked” based on the user’s input. Indeed, the conversation in Symons would not enable these actions to be performed. Symons does not describe providing payment information or medical record information. In my opinion, a POSITA as of November 5, 2017 would understand that this information would not be obtained using the conversation in Symons. By the same token, a POSITA as of November 5, 2017 would not have modified the conversation in Symons to be able to perform these actions

6. Claim 9 – Neither Symons nor Williams discloses or renders obvious “the automation process is configured to execute a new functionality of the computer program, wherein the new functionality is defined based on the values to the one or more parameters, without relying on a dedicated Application Programming Interface.”

259. Claim 9 provides: “[a] The method of claim 1, wherein the automation process is configured to execute a new functionality of the computer program,

wherein the new functionality is defined based on the values to the one or more parameters, [b] without relying on a dedicated Application Programming Interface.” (Ex1001, 23:14-19 ([a] and [b] supplied by Dr. Beigi in his analysis of Claim 9)).

260. At the outset, I note that Claim 9 is dependent on Claim 1 and thus, to the extent that Symons and Williams fail to disclose or render obvious Claim 1, these references likewise fail to do so for Claim 9. Moreover, despite Dr. Beigi’s assertions, these references do not teach the additional elements of Claim 9.

261. To assert this claim is met, Dr. Beigi advances a combination consisting of Symons and Williams. (Ex1003, ¶¶ 111-116). However, Dr. Beigi provides no motivation as to why a POSITA as of November 5, 2017 would modify Symons to meet element 9[a], executing a new functionality of “the computer program”. (Ex1003, ¶¶ 111-112).

262. Dr. Beigi accordingly fails to explain why the system disclosed in Symons would have been modified to add a new functionality of the asserted computer program. Both the chatbot, and “the computer program”, in Symons are set up to perform a very specific purpose—generating an email signature. The chatbot expressly can only be used to “create a new Cronos signature” (Ex1006, 2), and uses the “Cronos Email Signature Generator” to do so. A POSITA as of November 5, 2017 would have had no reason to expand the functionality of the email

signature generator (which appears to be a case-specific program), particularly in light of the fact that the chatbot has a singular functionality directed towards the same task. Indeed, Dr. Beigi offers no support for the concept that Cronos signature is capable of performing any of the other tasks he identifies, e.g., “automated generation of an electronic letterhead, automated generation of an electronic invoice, automated generation of an electronic invoice, automated generation of an electronic flyer, automated generation of electronic business cards, etc.” (Ex1003, ¶ 81).

263. Even assuming that Dr. Beigi is relying on his earlier analysis that it would have been obvious to expand “a chatbot-RPA bot system ... to handle multiple requests,” on the grounds that doing so would have “a reasonable expectation of success (Ex1003, ¶¶ 81-82), he has no basis for this claim. Symons intentionally provides no information on how either the email signature generator or the chatbot system operates. Without knowing how Symons functions, Dr. Beigi cannot provide an evaluation on the expectation of success in combining it with Williams.

264. In any event, even if it would make sense to modify Symons to perform additional functionality besides generating an email signature, Dr. Beigi does not explain why a POSITA as of November 5, 2017 would have been motivated to “add a new functionality” of “the computer program”, as opposed to making another modification to Symons. Depending on the underlying processes of Symons, a

POSITA could just have easily been motivated to modify the chatbot to allow for another functionality, which would not meet the claim element. In this regard, neither Dr. Beigi, nor any of the other Declarants submitted by Petitioner has identified any other functionality available by Cronos signature generation software, used to generate the email signature. Because these underlying processes are unknown (and intentionally kept secret at the relevant time period), however, there is no “additional functionality” which can be added to Symons.

265. Accordingly, in my opinion, a POSITA as of November 5, 2017 would understand that Symons and Williams, alone or in combination, do not disclose or render obvious Claim 9 of the '732 Patent.

B. GROUND 2 – “Symons, Williams and Ben-Itzhak [Purportedly] Renders Obvious Claims 6, 16, and 21” Fails

266. Claims 6, which depends from Claim 1, requires that “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.” (Ex1001, 22:65-23:3). Claim 6 is representative of Claim 16 (dependent on Claim 11) and of Claim 21 (dependent on Claim 18). (Ex1001, 24:9-14).

267. In my opinion, as I discuss below, a POSITA as of November 5, 2017, would understand, contrary to Dr. Beigi’s assertions, that Symons, Williams and

Ben-Itzhak do not disclose, either expressly or inherently, nor render obvious, Dependent Claims 6, 16, and 21 of the '732 Patent.

268. These claims depend from Independent Claims 1, 11, and 18, respectively, and are not obvious for the reasons that Independent Claims 1, 11 and 18 are not obvious. Additionally, as discussed below, the proposed combination fails, including because none of the cited references disclose that the “interaction with the link is configured to cause execution of the automation process” as required by the claims, because Ben-Itzhak is not analogous art, and because a POSITA as of November 5, 2017 would not have been motivated to combine the references as proposed.

1. Summary of Ben-Itzhak

269. As Ground 2, Dr. Beigi contends that claims 6, 16 and 21 are rendered obvious in view in view of U.S. Pub. No. 2017/0250,930 A1, published on July 31, 2017, with the first named inventor of Yuval Ben-Itzhak (Ex1034, “**Ben-Itzhak**”).

270. The “goal” of Ben-Itzhak is to improve the “provision personalized content recommendations that are interesting, trustworthy, and relevant to the user.” (Ex1034, [0003]). To achieve this, as Dr. Beigi notes, Ben-Itzhak discloses a “personalized content recommendation provision method and system” which is configured to present a user with a “personalized content recommendation” as part

of a “conversation agent to the user as a message or response” to “user messages in [an] active conversation”. (*Id.*, Abstract, [0018]; Ex1003, ¶ 137). The “personalized content recommendation may be provided to a user in any suitable form or format, including, but not limited to, an audio message (e.g., a voice message, an image, a video, a VR interaction, an AR interaction, a link to a different interactive communication platform, etc.)” (Ex1034, [0018]).

271. Notably, while Ben-Itzhak teaches providing a user with a URL link, the link is not “configured to cause execution of the automation process” as claim 6 requires. (*See* Ex1001, 23:1-3). Instead, links are provided in order to give a content recommendation and enable the user to “interact with [i.e., click on] the provided URL link associated with the personalized content recommendation to access and consume the recommended content.” (Ex1034, [0018]). Indeed, Dr. Beigi does not argue otherwise. (Ex1003, ¶¶137-143).

2. Symons, Williams, and Ben-Itzhak Do Not Teach claims 6, 16, or 21, “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”

272. Dr. Beigi asserts that “it would have been obvious to combine Ben-Itzhak with Symons and Williams at the time of the ’732 patent priority date, such

that interaction with the link is configured to cause execution of the automation process.” (*Id.*, ¶ 142). Absent, however, from Dr. Beigi’s analysis is any assertion that any of the references discloses the element that “interaction with the link is configured to cause execution of the automation process.”

273. For this proposed combination, Dr. Beigi supplies Ben-Itzhak to show a “natural language interface” (Ex1003, ¶ 138) that “is implemented by a third-party messaging service” (Ex1003, ¶ 139) and is configured to “provide the user with a link” that can be interacted with by a user. (Ex1003, ¶ 140). However, as discussed, Ben-Itzhak teaches using links to provide a personalized content recommendation to access and consume the recommended content” (Ex1034, [0018]), not to execute an automation process, and Dr. Beigi does not argue otherwise. (Ex1003, ¶¶ 138-140).

274. As to Symons and Williams, while Dr. Beigi asserts that both “Symons and Williams disclose an interaction that is configured to cause execution of an automation process”, Dr. Beigi’s assertion is unsupported by the evidence he provides, and in any event, does not teach the claimed element. (Ex1003, ¶ 142). Neither “interfac[ing] directly with applications” via “APIs” (Williams, Ex1011, 2) nor “interface[ing] with multiple platforms: an email signature platform, Microsoft Word, and Microsoft Word” (Symons, Ex1006, 11, 15, 21) discloses causing the execution of an automation process based on an interaction, let alone based on

interaction with a link. (Ex1003, ¶¶ 142-143). The cited portions of these references only teach that an automation process (once executed) can use multiple applications, not that the execution is caused based on an interaction with a link.

275. Accordingly, in my opinion, since Dr. Beigi does not identify a reference which teaches the element that “interaction with the link is configured to cause execution of the automation process”, a POSITA as of November 5, 2017 would understand that Dr. Beigi’s proposed combination does not teach all of the elements of Claim 6, 16, or 21, and thus fails the combination fails.

3. Ben-Itzhak Is Non-Analogous Art to the '732 Patent

276. For Grounds 2 and 4, the Petition and Dr. Beigi rely upon Ben-Itzhak (Ex1034) as prior art for purposes of obviousness.

277. I understand that in order to be considered for purposes of an obviousness analysis a reference needs to be considered analogous art to the claimed invention in the challenged patent. In other words, I understand the asserted reference must either be from the same field of endeavor as the claimed invention, or reasonably pertinent to the problem faced by the invention. Ben-Itzhak is neither in the same field of endeavor nor reasonably pertinent to the problem faced in the '732 Patent.

a. First, Ben-Itzhak does not address the same field of endeavor as the claims of the '732 Patent.

278. In my opinion, a POSITA as of November 5, 2017 would have understood the claimed invention and Ben-Itzhak to be in different fields and would have understood that the problem to be solved by Ben Itzhak was very different from the problem to be solved by the claimed invention.

279. In the first place, in my opinion, a POSITA as of November 5, 2017 would understand that the claimed invention in the '732 Patent is directed to the method of defining a conversation used to invoke an automation process as illustrated, for example, by the method shown in FIG. 3, as both the Board

recognizes. (Paper 10, at 3 (“The ‘732 Patent discloses exemplary embodiments for a non-programmer user to define a flow of conversation for a chat bot.”)).

280. By contrast, Ben-Itzhak is in a different field than the claimed invention in the ‘732 Patent. Ben-Itzhak aims to provide “[a]n interactive communication-based personalized content recommendation provisioning method and system.” (Ex1034, Abstract; Ex1034 [0016]). Indeed, Ben-Itzhak sought to overcome problems specifically relating to improving “personalized content recommendations that are interesting, trustworthy, and relevant to the user” (Ex1034, [0003]; Ex2003,294:14-18), not defining a conversation to gather information to implement an automation process:

In the digital content or any service industry, it is desirable for a content or service provider (e.g., a website publisher, a car manufacturer etc.) to present users with "recommended" content. In this regard, it is a goal to provision personalized content recommendations that are interesting, trustworthy, and relevant to the user. This will have the effect of increasing the user's consumption of the recommended content, achieving a higher level of user engagement with the content and services provided, and increasing the content or service provider's revenue.

(Ex1034, 1:7-18). Further highlighting the differences between the two patents, as Dr. Beigi confirmed, the '732 Patent provides “no example of content recommendation.” (Ex2003, 295:15-20).

281. Accordingly, in my opinion, a POSITA as of November 5, 2017 would understand that Ben-Itzhak is in a different field of endeavor from the '732 Patent.

b. Nor is Ben-Itzhak reasonably pertinent to the problems faced by the claims of the '732 Patent.

282. As taught by the '732 Patent, its claims are meant to address difficulties relating to improving the process of creating chatbots and automation processes, including in the context of “[i]ntegration of a new system into an organization” and training usage on such systems (Ex1001, 5:38-41), “defining automation processes” to be robust (Id., 5:49-52), and, importantly, in “**defining the chat bots** without the need of using dedicated APIs, programming languages, or the like.” (Id., 5:29-33).

283. There is no discussion in '732 Patent about using the claimed technology to develop personalized content recommendations. Ben-Itzhak does not provide disclosure which is pertinent to the problems sought to be addressed by the patented claims, which all revolve around making defining chatbots and automation processes more user-accessible.

284. Again, by contrast, as discussed, Ben-Itzhak is focused on providing those involved with the “digital content or [] service industry” with a tool “to present

users with ‘recommended’ content”. (Ex1034, [0003]). Indeed, Ben-Itzhak does not define a conversation to invoke a parameterized automation process according to information provided from a user. Accordingly, in my opinion, a POSITA as of November 5, 2017 would understand that the techniques disclosed by Ben-Itzhak are not pertinent to the problems sought to be tackled in the ’732 Patent.

285. Finally, I note that while Dr. Beigi relies on Ben-Itzhak to assert that the claims of the ’732 Patent are obvious, he provides no analysis to suggest or support that Ben-Itzhak is analogous art to the ’732 Patent or any other reasoning to support the idea that a POSITA as of November 5, 2017 would have considered Ben-Itzhak in addressing the problems addressed by the ’732 Patent.

286. Accordingly, in my opinion, because Ben-Itzhak is in a distinct field from the ’732 Patent, and is not reasonably pertinent to the problems attempted to be solved by the ’732 Patent, it is non-analogous art to the ’732 Patent. Dr. Beigi’s obviousness analysis which relies on Symons and Williams in combination with Ben-Itzhak accordingly fails for at least this reason.

4. Dr. Beigi Fails To Identify In His Declaration How He Asserts A POSITA Would Modify the Prior Art

287. Nowhere in his Declaration does Dr. Beigi explain how he proposes a POSITA would modify Symons and Williams in view of Ben-Itzhak. Cf. Ex1003, ¶¶ 212-213. He indicated that he believed it “would have been obvious to combine

Ben-Itzhak with Symons and Williams at the time of the ‘732 priority date” (Ex1003, ¶ 142), but he neglects to describe how the modification would occur. While Dr. Beigi reserves paragraphs 142 and 143 for explaining this proposition, I could not find any description of how a POSITA would modify the prior art. Dr. Beigi simply asserts that “Ben-Itzhak provides a solution for achieving [the] benefits [described in Symons and Williams].” (Ex1003, ¶ 143). He fails to disclose to what platform Symons or Williams would need to be connected.

288. But more importantly, I do not think that such a modification makes sense in view of the disclosure of Symons and Williams. Even if Symons and Williams were read in the context of a content recommendation engine, I do not see how such a modification would meet the claim elements. Even if Symons and Williams were modified to invoke a content recommendation engine, I do not see how such a modification would result in the Allen utilizing “a third-party messaging service” or having its “natural language interface” being configured to “generate and provide the user with a link” “configured to cause execution of the automation process”. Neither Symons, Williams, nor Ben-Itzhak disclose invoking an automation process using a link. Instead, Ben-Itzhak describes using a URL link in the customary way – to direct traffic to a website. (Ex1034, [0018] (“a Uniform Resource Locator (URL) link may be provided by the conversation agent to the user

... the user may interact with the provided URL link to access and consumer the recommended content’’)). In my opinion, a POSITA as of November 5, 2017 would not understand that driving traffic to the Cronos email signature generator is not an apparent concern for Symons. In the showcase, Mr. Vincent De Bie (as the chatbot user) apparently never sees the RPA’s operation which is being run on Symons computer’ (a different computer).

289. Additionally, Symons already discloses it “passed on” to the RPA the collected information automatically (Ex1004, 2), and it is counter-intuitive to change the operation of the chatbot to require a manual process to invoke the RPA manually with a link. Such a manual process increases the number of steps a user needs to perform, and thus reduces the benefits attributed to RPAs by, e.g., Williams.

290. In any event, Dr. Beigi’s proposal of switching to a separate chatbot, instead of Arinti’s chatbot which is offered by another cronos group entity, is likely to increase costs, not reduce costs as he suggests. Moreover, nothing would indicate that Symons suffered from a long deployment time issue, as it was deployed within seventeen days of Symons beginning to work at Robarana. Consequently, his analysis makes no sense.

**5. A POSITA Would Not Have Been Motivated to
Combine Ben-Itzhak with Symons and Williams**

291. Dr. Beigi also does not identify a proper motivation to combine Ben-Itzhak with Williams and Symons. In my opinion, contrary to Dr. Beigi's assertions, a POSITA as of November 5, 2017 would not have had a rationale to combine Ben-Itzhak with Williams and Symons.

292. Dr. Beigi asserts that a POSITA would be motivated to combine the references as follows:

As discussed for element 9[b], Williams explains the benefits, specifically shorter times for deployment, lower upfront costs, and lower operational costs, to interfacing with a different platform without utilizing an API of a computer program. A POSITA would have been motivated by these benefits. Generating and providing a link is a way to interface with a different platform without utilizing an API. Williams specifically identifies the benefits for interfacing with a different platform without utilizing an API (interfacing via a generated and provided link), and Ben-Itzhak provides a solution for achieving these benefits.

(Ex1003, ¶ 143).

293. Dr. Beigi's analysis is flawed. As discussed, Williams does not discuss "interfacing with a different platform" to "cause execution" of an automation process, but only to perform an automatic task. (Ex1011, 2). The asserted "solution"

provided by Ben-Itzhak does not relate to automation at all (Ex1034, Abstract) but rather to provide a link for content recommendation, and accordingly would not have led to the “shorter times for deployment”, “lower upfront costs”, or “lower operational costs” discussed as advantages by Williams. Accordingly, while Dr. Beigi states that “Ben-Itzhak provides a solution for achieving these benefits” (Ex1003, ¶143), a POSITA as of November 5, 2017 would have understood that combining Ben-Itzhak with Williams, would not have provided any of the suggested benefits.

294. Dr. Beigi also provides no explanation as to how these asserted rationales would support modifying Symons (the underlying reference) with Ben-Itzhak to use a third-party messaging service. Symons had already developed, and implemented, its own messaging service. Since it had already been developed, the motivation of reducing costs makes little sense. More importantly, use of third party messaging services would likely inhibit the ability of Symons to provide information to the Cronos email signature generator.

295. Dr. Beigi also does not explain or identify how Symons would be improved by adding a link to cause execution of the automation process, and why it would have been obvious to a POSITA as of November 5, 2017 to implement this in the invention. In my opinion, a POSITA would have had no reason to add this feature

to Symons since Symons already assertedly performs the automation process it was designed to – generating an email signature.

296. Accordingly, in my opinion, a POSITA as of November 5, 2017 would understand, despite Dr. Beigi's assertions, that Williams, Symons, and Ben-Itzhak, alone or in combination, do not disclose, either expressly or inherently, or render obvious Claims 6, 16 or 21 the '732 Patent.

C. GROUND 3 – “Allen [Purportedly] Renders Obvious Claims 1-5, 9-15, and 18-20” Fails

297. In my opinion, as I discuss below, a POSITA as of November 5, 2017 would understand that Allen does not disclose, either expressly or inherently, nor render obvious, Independent Claims 1, 11, and 18 of the '732 Patent, at least because Allen fails to disclose or render obvious elements [a], [b], [c], and [d] of Claims 1, 11 and 18. Because Allen neither discloses nor renders obvious these claims, the dependent claims of the '732 Patent, which require the elements of the independent claim to be met, are also not disclosed nor rendered obvious. However, as I discuss below, to the extent that Allen purportedly teaches the elements of independent claim 1, 11 and 18, in my opinion, a POSITA would understand that Allen still does not teach dependent claims 2-4, 12-13, and 19.

1. Summary of Allen

298. As Ground 3, Dr. Beigi contends that claims 1-5, 9-15, and 18-20 are “obvious” in view of U.S. Patent No. 7,983,997, granted on July 19, 2011 to James F. Allen, et al. (Ex1014, “**Allen**”) by itself. (Ex1003, ¶¶146-211). However, in asserting that Allen renders the ’732 Patent obvious, Dr. Beigi states that each of the elements of the independent claims are “disclosed” in Allen (Ex1003, ¶¶ 148, 155-56, 160, 164, 166), and so appears to be asserting that Allen anticipates the claims of the ’732 Patent. Only with respect to elements 1[c], 9[c] and 18[c] does Dr. Beigi present any sort of obviousness analysis, and then in the alternative. (Ex1003, ¶161).

299. In the Institution Decision, the Board “determine[d] that Petitioner has sufficiently shown at this stage of the proceeding that Allen teaches each of the elements of claim 1 and that the information presented in the Petition demonstrates a reasonable likelihood that claim 1 is unpatentable under 35 U.S.C. § 103 over Allen.” (Paper 10, Institution Decision, at 23). While the Board summarized Petitioner’s obviousness combination in element 1[c], it did not appear to expressly adopt the obviousness rationale provided therein. (Paper 10 at 21).

300. Given the ambiguity present in Dr. Beigi’s analysis, I treat Dr. Beigi’s analysis as arguing both that Allen discloses and renders obvious the claims of the ’732 Patent. I disagree with this Dr. Beigi’s (and hence, the Board’s) conclusion. The

claims of the '732 Patent are not disclosed, either expressly or inherently, nor rendered obvious by, Allen.

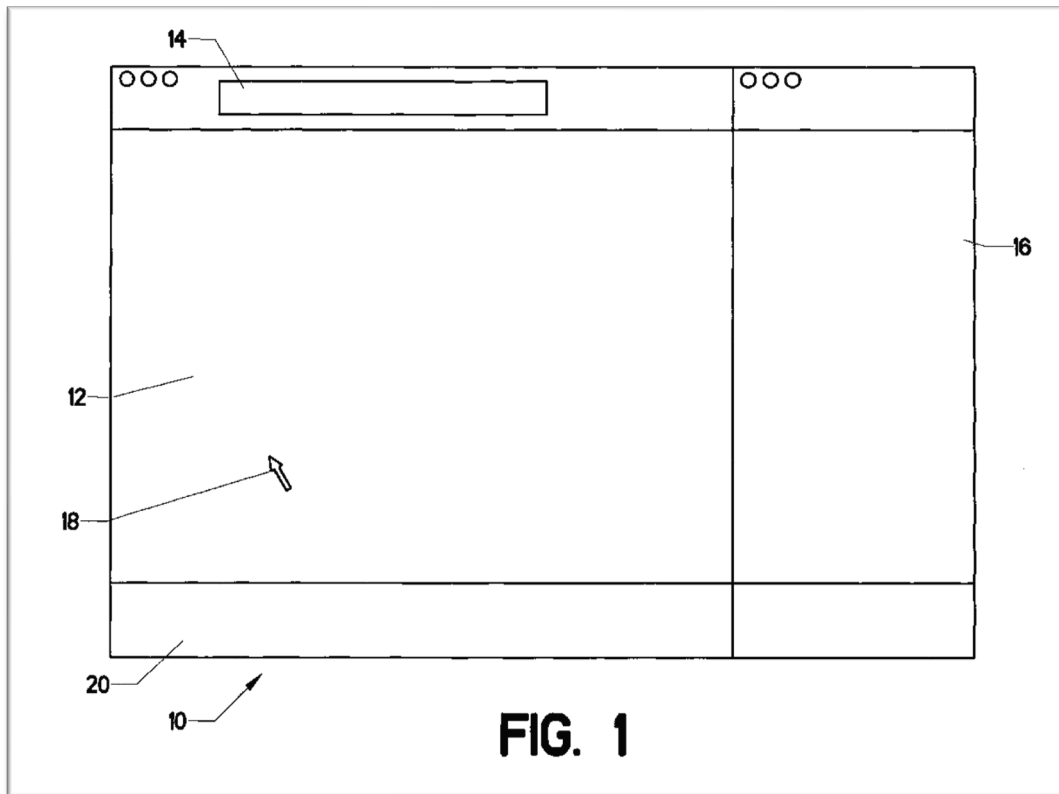
301. A fundamental problem with Dr. Beigi and the Board's analysis is that the claimed invention in the '732 Patent involves a three-step process to define a conversation, associate that conversation with an automation process, and then publish that conversation to be accessible to a user, but, like Symons and Williams, Allen provides no description coming close to these steps.

302. Instead, Allen is directed towards teaching a computer, the **“Procedural Learning on the Web”** System (known as “PLOW”) to learn an automation process on the internet. As the name implies, PLOW is a system for **learning automation procedures**, not defining, associating, or publishing a **conversation**. As Dr. Beigi recognizes (Ex1003, ¶146), PLOW is “[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) often but not limited to being a browser.” (Ex1014, Abstract). In Allen, “the user ‘teaches’ task steps by inputting natural language and demonstrating actions with the GUI.” (Ex1014, Abstract). Significantly, 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. It merely discusses teaching these tasks.

303. Dr. Beigi relies on FIGS. 1, 3 and 7 of Allen in his analysis, but these figures do not demonstrate defining a conversation, associating that conversation with an automation process, or publishing that conversation, but instead illustrate how the “PLOW” system learns to **perform a task** (as exemplified in the figures, how to buy a book). FIGs. 2 and 8, while not discussed by Dr. Beigi, are related figures and further demonstrate the process of teaching the PLOW system how to **perform a task**.

304. FIG. 1 of Allen provides a blank GUI of the learning system, while FIGS. 2 and 3 of Allen illustrate how a user would go about teaching the system how to buy a book.



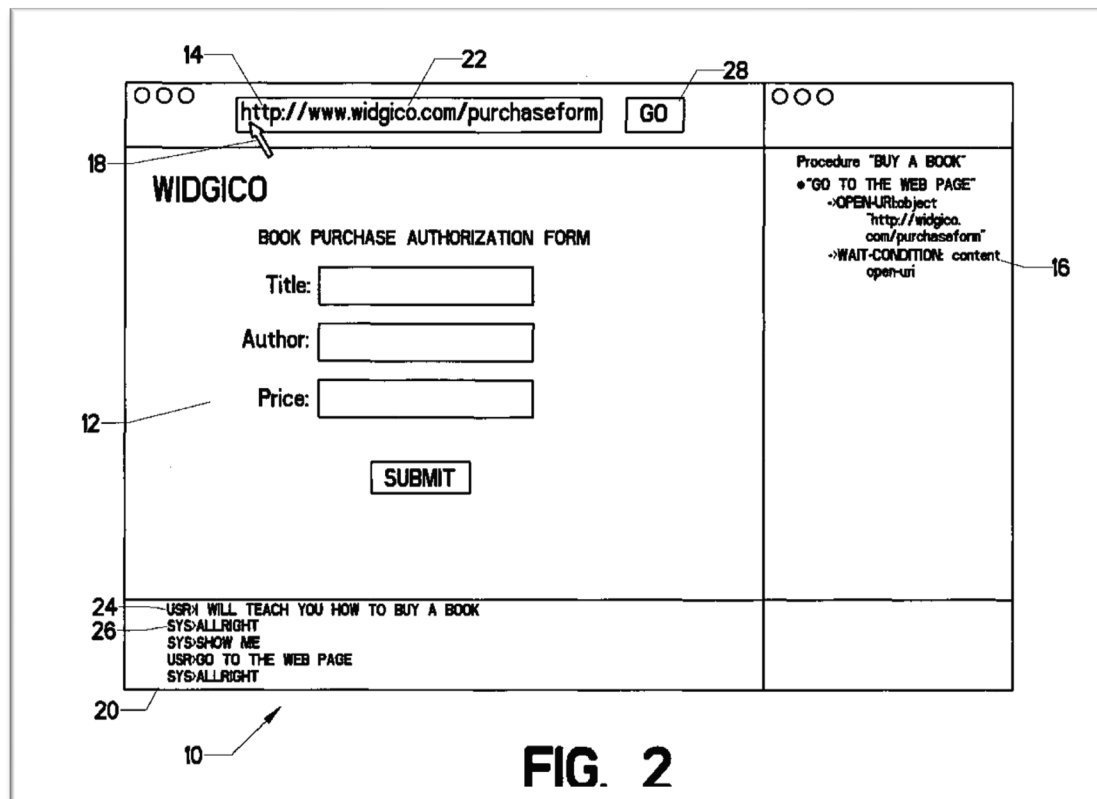
(Ex1014, FIG. 1)

305. “FIG. 1 shows a representative graphical user interface 10” with a “[b]rowser display 12,” a “URI entry box 14” (allowing for URLs to be input), a “movable cursor 18”, a “task log 16” on the right side which “shows the tasks that have been learned so far **in the learning** sessions”, and a “speech interface display 20” on the “bottom of the display area” which allows “the user to monitor his or her interaction with PLOW”. (Ex1014, 5:6-20).

306. Allen does not disclose using the “speech interface display 20” to obtain from the user one or more values associated with the automation process or to define

a conversation to obtain such information. Instead, as FIGs. 2 and 3 demonstrate, the GUI, which includes the “speech interface display 20”, is used to teach the PLOW system how to perform a task to be automation.

307. To illustrate, the text depicted in the “speech interface display 20” in FIG. 2 relates directly to a learning process of PLOW. As the first message, PLOW “displays the message [uttered by the user] ‘USR>I WILL TEACH YOU HOW TO BUY A BOOK.’ The label ‘USR>’ indicates that this is the speech uttered by the user, as understood by the software.” (Ex1014, 5:36-39). PLOW then prints out “Alright. Show me.” with the label “SYS>”. (Ex1014, 5:44-49).



(Ex1014, FIG. 2 of Allen)

308. As indicated in FIG. 2, PLOW “creates a title for the new process it is about to learn and displays the title in task log 16” (in FIG. 2, “Procedure ‘BUY A BOOK’”) (Ex1014, 5:56-60). Because the tasks are displayed in the learning GUI and the task log, “[t]he reader can thereby monitor whether PLOW has correctly understood the present objective.” (Ex1014, 5:60-62). Dr. Beigi asserts that “[i]t would have been obvious that in order for the user to easily monitor the system’s actions, the system’s actions would have to be displayed” (Ex1003, ¶161). I disagree. Allen is teaching the user is monitoring the training process, not the implementation of the automation process after training. Thus, the teaching of Allen would not inform a POSITA as of November 5, 2017 on how the system’s actions would be displayed (or not displayed) when invoked.

309. As a step in the process of buying a book, the user also instructs PLOW to “Go to this web page” (displayed as “USR>GO TO THE WEB PAGE”), and PLOW responding, again “Alright. Show me” (displayed as “SYS> ALLRIGHT”), prompting further user input. (Ex1014, 5:63-6:3).

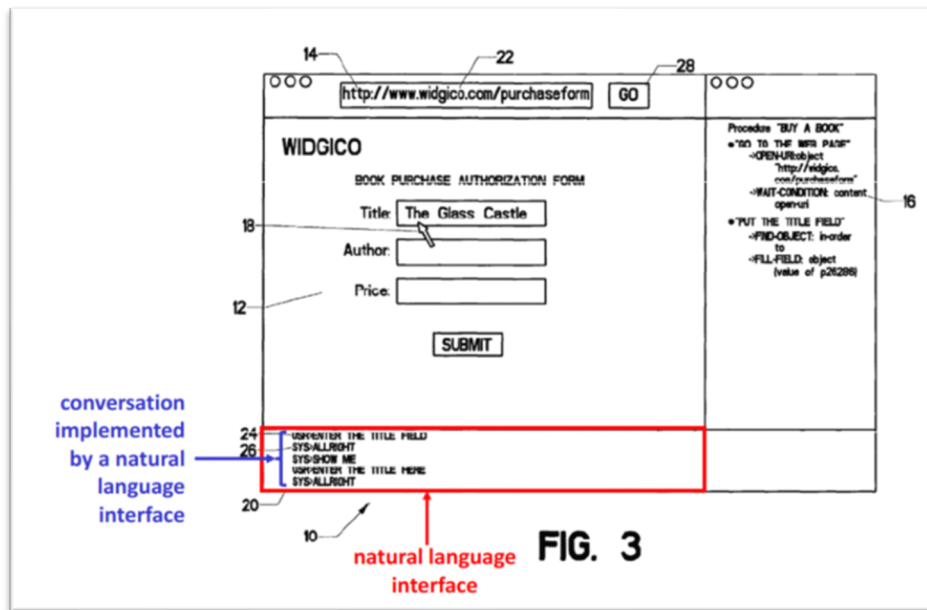
310. Accordingly, all of the text in the “speech interface display 20” of FIG. 2 relates to teaching the procedural learning system. This does not meet the express

attributes for defining a “conversation” as set forth in the ’732 Patent claims, which, as discussed, must:

- “invoke[]” a “[parameterized] automation process” and
- be “configured to obtain from the user one or more values to one or more parameters associated with the automation process”. (Ex1001, 22:15-23).

311. Further, the illustrated “conversation” in FIG. 2 is not “define[d]” (by a user or otherwise), then “associated ... with the automation process”, and then “publish[ed] ...” to “enable” a user “to interact with the natural language interface in accordance with the conversation.” (Ex1001, 22:19-39). Instead, it is reflective of the system seeking user input as part of a learning process.

312. As for FIG. 3, Dr. Beigi provides the following markup, which incorrectly labels the conversation presented in the speech interface display 20 as a “conversation implemented by a natural language interface”:



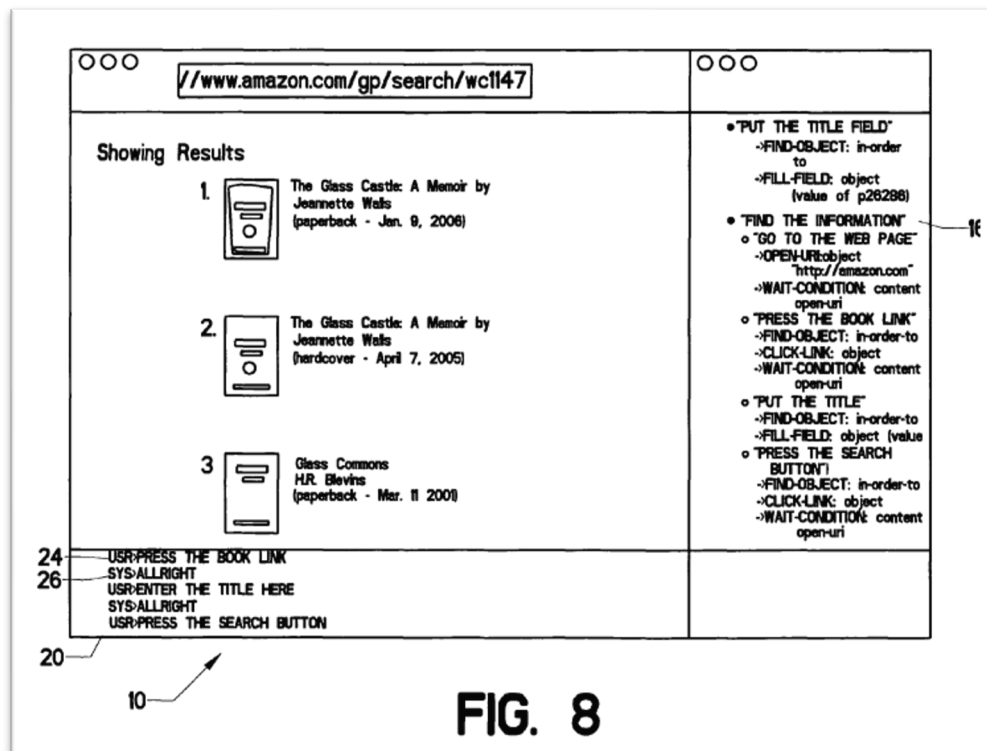
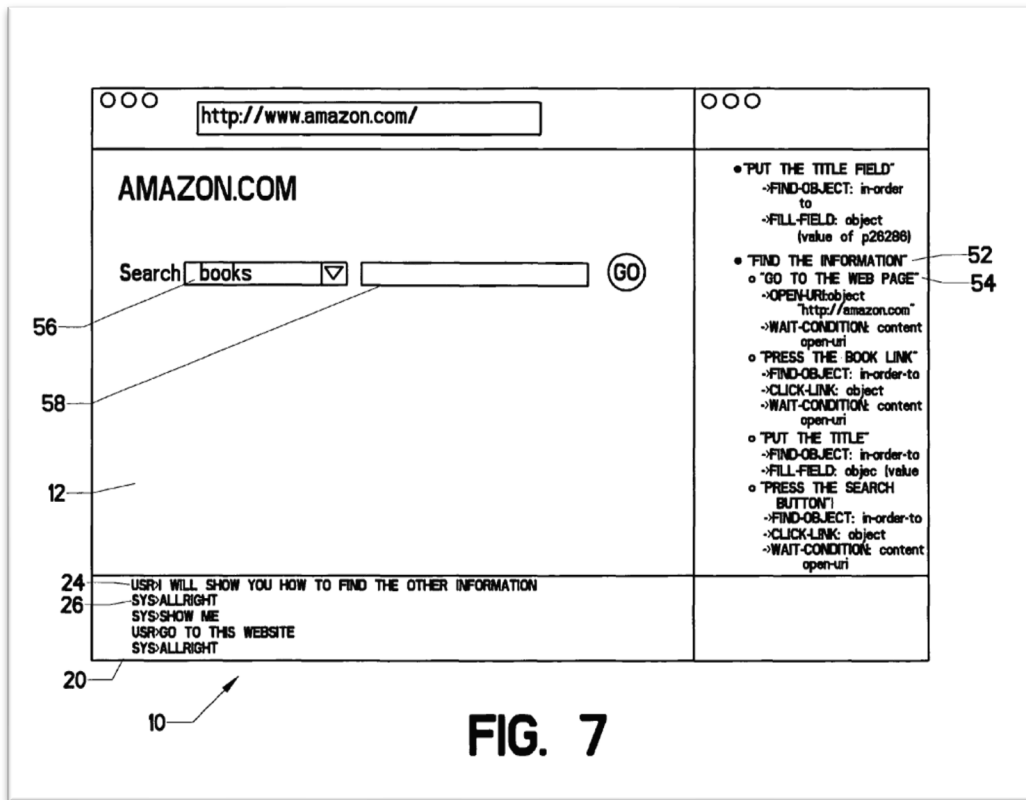
(FIG. 3 of Allen, as annotated by Dr. Beigi in Ex1003, ¶151)

313. To the extent Dr. Beigi is arguing that the conversation in interface 20 “invoke[s]” a “[parameterized] automation process” or is “configured to obtain from the user one or more values to one or more parameters associated with the automation process”, I disagree. (Ex1001, 22:15-23). As FIG. 3 demonstrates, the “conversation” identified by Dr. Beigi is oriented towards teaching an automatic task. The user gives instructions to “Enter the title field” (shown as “USR>ENTER THE TITLE FIELD”) (Ex1014, 6:24-31). The PLOW system then displays “ALLRIGHT” and “SHOW ME”, prompting the user to show the title field. (Ex1014, 6:31-35). The user, while using the cursor to hover over the title field, says “Enter the title here” (shown as “USR> ENTR THE TITLE HERE”), resulting in

PLOW capturing the action and stating “All right” to indicate that it has done so. (Ex1014, 6:34-37). Significantly, when referencing the conversation which PLOW has after being trained with a user, “ENTER THE TITLE FIELD” and “ENTER THE TITLE HERE” are not part of that conversation shown in FIG. 3, but are instead used for training. (Cf. Ex1014, 12:64-13:5).

314. Allen may disclose the use of a natural language interface for the purpose of teaching an automation process. However, this is not what the claim requires. The claim requires that the “parametrized automation process is invoked by the natural language interface”. In other words, the claims require that the end user utilizes a natural language interface to invoke an existing automated process as part of a conversation, not to teach the system how to automate that process.

315. Similarly, related FIGs. 7 and 8 only demonstrate using “speech interface display 20” to teach PLOW how to obtain information (such as price and author):



(FIGs. 7 and 8 of Allen, Ex1014).

316. The GUI displays in FIG. 7 and 8 demonstrate, again, how PLOW learns an automation process, not how PLOW defines a conversation to be used with a user to invoke such a process. The text presented in the speech interface display 20, consistent with FIG. 2 and 3, revolves around teaching PLOW how to buy a book (namely, obtaining other information about the book) (Ex1014, 12:26-13:5), not “invoking” a “[parameterized] automation process”, nor “obtain[ing] from the user one or more values to one or more parameters associated with the automation process.” These figures also do not disclose “defining a conversation”, “associating the conversation with an automation process”, or “publishing the conversation.” (Ex1001, 22:19-39).

317. Dr. Beigi’s analysis, at its core, appears to be arguing that, because PLOW can be taught to perform a task that requires user input, and then can perform that task, it inherently discloses the elements of the independent claims 1, 11 and 18. I disagree and in my opinion, a POSITA as of November 5, 2017 would not understand that the steps of these claims are necessarily performed by PLOW to generate a conversation with a user to implement the trained task, as is necessary to establish inherency.

318. Further, to the extent Dr. Beigi is asserting it would be obvious to modify Allen to perform such steps, he has not performed a proper obviousness analysis including in particular “differences between the claimed invention and the prior art” and indicating how and why a POSITA as of November 5, 2017 would have been motivated to modify the prior art to make the claimed invention.

319. With respect to executing the tasks that PLOW has learned, the disclosure of Allen is threadbare, providing only one component – “PLOW’s task database”. (Ex1014, 12:63). Nevertheless, Dr. Beigi relies heavily on the passage discussing execution to explain how Allen purportedly “must” disclose a conversation which must be “defined” (Ex1003, ¶¶ 152-155), “associated with the automation process” (Ex1003, ¶ 156), and “publish[ed] . . . to be accessible to a user.” (Ex1003, ¶164):

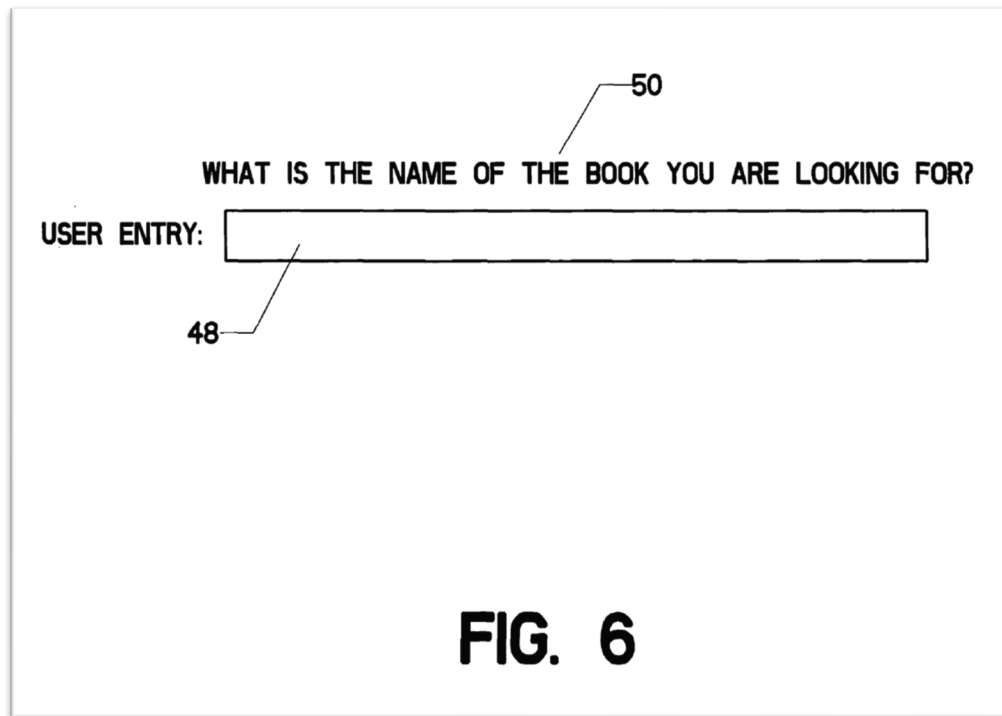
Once the complete task is learned, the user can employ PLOW’s task database the next time he or she wishes to order a book. The user would only need to say something like “I want to buy a book.” The system would then ask, “What is the title of the book?” Once that information is provided, PLOW would then perform the steps it was previously taught and complete the transaction. Of course, the user can build in “authorization” steps. As an example, the user could teach the system to obtain price and delivery date information, then provide this information back to the user and ask whether the user wishes to complete the transaction.

(Ex1014, 12:64-13:5). While not expressly stating that he is making an “inherency” argument, I understand that by using the word “must” he is trying to

make an inherency argument. I do not agree with his conclusion that this passage “must” be implemented by the steps of the claimed invention.

320. While this passage indicates that, if a user were to say “I want to buy a book”, the system would ask, “What is the title of the book?”, which, when provided, enables PLOW to “perform the steps it was previously taught and complete the transaction” (Ex1014, 12:64-13:5), Allen does not disclose that PLOW asks “What is the title of the book?” using the “speech interface display 20”.

321. Instead, with respect to asking the question “What is the title of the book”, as Dr. Beigi recognized during his deposition, “What is the title of the book?” is presented to the user using a form like the one shown in FIG. 6 (Ex2003, 257:20-24):



(Ex1014, FIG. 6).

322. Additionally, 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. (Ex1014, 12:66-13:1). For example, Allen does not disclose performing a simulation of the sequence of interactions by PLOW system.

323. Indeed, what the user taught PLOW, in FIG. 3, was where, as part of the automation process, in the GUI the title should be entered, not how to formulate a conversation to obtain, from a new user, title information that should be entered. Indeed, all that is disclosed is that “PLOW’s task database is used.” (Ex1014, 12:63). In my opinion, a POSITA as of November 5, 2017 would understand the PLOW task

database to have the instructions to perform the task, in contrast to the conversation used to invoke such instructions. **No mention is made in Allen of using the training GUI in FIGs. 1-3, 7-8, to define, associate, or publish a conversation.** And PLOW, because of its operation, **does not necessarily create a direct correspondence between the user's actions and whatever questions are asked.** For example, PLOW's tasks (like "BUY A BOOK"), are not simply the "result[s] of speech recognition, but rather ... *independently generated phrase[s]* reflecting the system's understanding of the user's intent." (Ex1014, 7:51-63).

324. Further, the tasks of Allen do not necessarily require user input (e.g., a task of gathering 10 latest publications in a defined field), and in such cases no questions would be posed to the user by PLOW, rendering the conversation empty. Even if a task does require user input, it does not necessarily require the user to provide the input as part of a conversation, but instead can use a window such as displayed in FIG. 6.

325. As I discuss in detail with respect to Claims 2 and 3, Allen also does not disclose an ordering of a conversation to obtain parameters, nor elements of the conversation, which only bolsters my conclusion that Allen does not teach defining a conversation. In contrast to the '732 Patent, which discloses defining a conversation using, e.g., a GUI via buttons including an "add message button 552",

an “add question button 554”, an “add condition button 556”, and an “add action button 558” (Ex1001, 15:52-16:13), Allen provides no comparable disclosure about how a conversation, or the order, may be defined, let alone must be defined.

326. Indeed, in my opinion, a POSITA as of November 5, 2017 would understand that there are many ways that a conversation for a chatbot could be developed. An automation process could be defined, and associated with a conversation that is defined after the association. The conversation also does not need to be “published” in Allen, and could simply be written directly in the same chat bot as the training session. Indeed, this is how Dr. Beigi attempts to read on the claim.

327. Nor is it inherent that Allen would go about performing the taught automation process in the manner required by the claimed invention. All that is required by Allen is that the system receive user input (if necessary) for steps in the automation process. No mention is made of using the browser display 12 to execute the process in FIGs.1-3, 7-8, even assuming that the speech interface display 20 is used. Case in point, Allen expressly discloses that, because of the flexibility of the ontological framework used by PLOW, the system can perform tasks it has never been taught. For example, a user can instruct PLOW to “Select the ‘Movies’ tab”, and, despite the task being undefined, PLOW can generalize from its experience with

a “Books” tab link to understand what is meant by selecting a ““Movies’ tab”. (Ex1014, 10:65-11:13). All of this means that PLOW does not necessarily perform the elements of claim 1 as it performs an automation task, even assuming it discloses a conversation, since PLOW can perform (and ostensibly seek user input regarding) a task that has never been defined.

328. Similarly, PLOW can also create intervening steps, including those not defined by the user. In the context of FIG. 3, “rather than simply duplicating the steps the user has demonstrated, PLOW creates another intervening step”, where the “system will . . . search the HTML code and identify the text object corresponding to the book’s title.” (Ex1014, 12:15-23). Again, this is an indication that the automation process of PLOW is not necessarily defined, as that term is used by the ’732 Patent.

329. Finally, 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. (Ex1014, 12:66-13:1). For example, Allen does not disclose simulating a sequence of interactions with the displayed user interface using PLOW.

330. Moreover, in my opinion, a POSITA as of November 5, 2017 would understand that PLOW does not necessarily “utilize a displayed user interface of a computer program to simulate [a] sequence of interactions with the displayed user

interface of the computer program” to execute a functionality of the computer system as required in the claims. (Ex1001, 22:25-29). As discussed, the GUI displayed in FIG. 3 is displayed in the context of teaching PLOW (*see, e.g.*, Ex1014, Abstract), and not in the context of actually performing the automation process. For example, Allen could be implementing the automation process by performing a URL call with the values of the fields included without necessarily displaying the user interface. And, as Williams explains, “robots can be configured to interface directly with applications through pre-existing application programming interfaces (APIs)”. (Ex1011, 2).

331. Thus, on the whole, Allen generally describes teaching a procedural learning system the steps of a task, not how to generate a conversation to invoke a task once trained. Thus, contra Dr. Beigi’s analysis, it does not disclose, either expressly or inherently, nor does it render obvious, the claims of the ’732 Patent, which revolve around a particular way of generating a conversation to invoke an automated process. Specifically, there is no disclosure in Allen to define a conversation, associate that conversation with an automation process, and then publishing the conversation, let alone the details of the conversation that is being defined, including elements of the conversation such as “message elements”, “condition elements”, “question elements” and “action elements”, or the order of

such elements in the conversation being defined. I discuss this further below with respect to particular elements of the claims below.

2. Allen does not disclose nor render obvious Claims 1, 11 or 18 (and by extension their dependent claims)

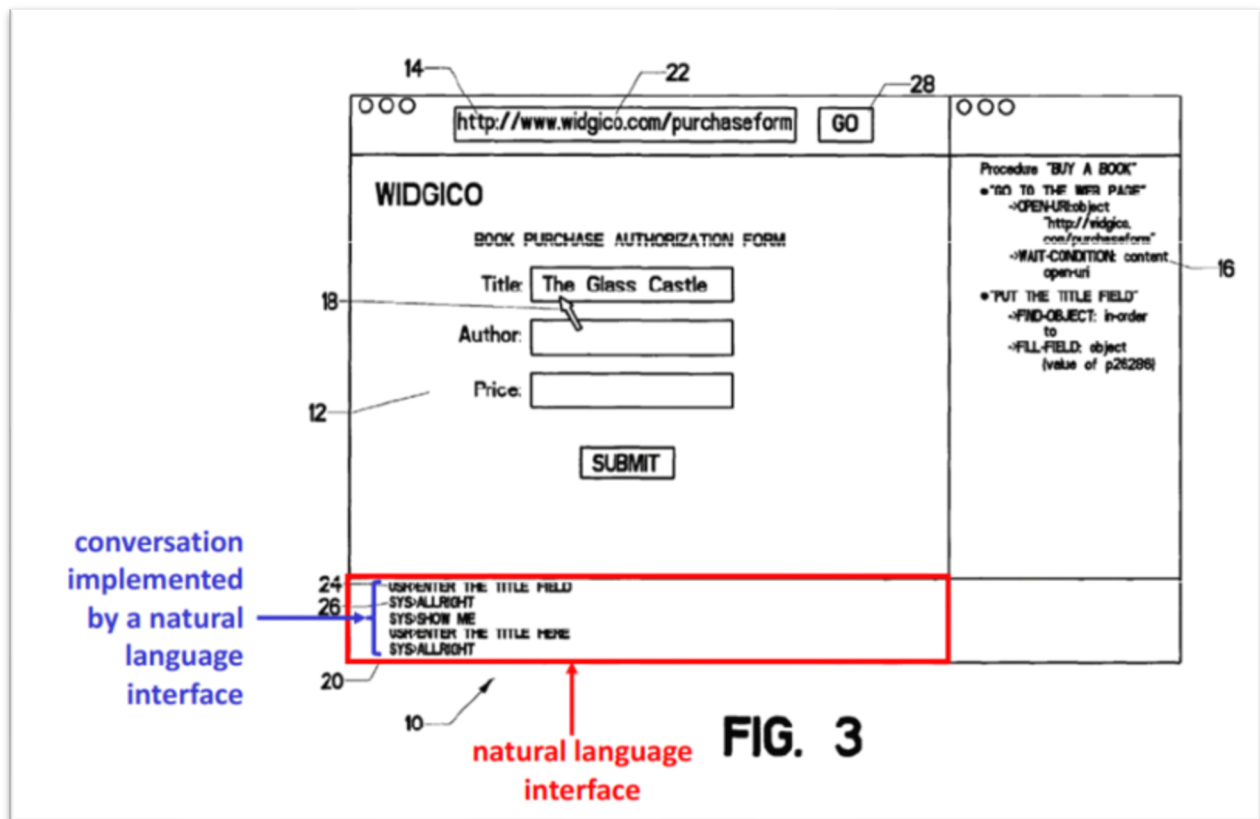
a. 1[a], 11[a], 18[a] – Allen does not disclose or render obvious “defining a conversation to be implemented by a natural language interface”.

332. Contra Dr. Beigi (Ex1003, ¶¶ 151-155), Allen does not disclose “defining a conversation to be implemented by a natural language interface.” Neither Dr. Beigi nor the Petition identify a modification of Allen which would render this element obvious, and in my opinion, a POSITA as of November 5, 2017 would not find this element obvious in view of Allen.

333. As I explained (*see* pars. 101-107, *supra*), in the context of the ’732 Patent, “defining a conversation” means 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. In other words, defining a conversation requires at least that (a) a user, without using programming skills (b) generates a conversation flow for implementation by a chatbot. The system of Allen does not disclose the user performing any generation, nor does it show a “conversation flow”.

334. Dr. Beigi, in suggesting that element [a] is met, points to FIG. 3 as well as to the passage cited previously in 12:62-13:5 discussing how “the user can employ PLOW’s task database.”

335. As for FIG. 3, Dr. Beigi provides the following markup, which suggests that the conversation presented therein is a “conversation implemented by a natural language interface”:



(Ex1003, ¶151)

336. However, as I explained (*see* pars. 303-319, *supra*), the text in “speech interface display 20” relates to a learning process, where “the user is **teaching the system** how to buy a book.” (Ex1014, 12:10-12). It does not show the user teaching the system what conversation to invoke in the chat bot. In other words, the text reflects the user teaching the system how to perform a task, not a “conversation” which has been, or is being, defined. This is evident from the text present in the speech interface display itself (“**USR> ENTER THE TITLE FIELD**”, “**SYS> ALLRIGHT**”, “**SYS>SHOW ME**”, “**USR>ENTER THE TITLE HERE**” (with cursor at the title field), “**SYS>ALLRIGHT**”) as well as the presence of the “task log 16” which shows the steps the PLOW system is learning. (Ex1014, FIG. 3). Indeed, FIG. 3 does not relate to “defining a conversation” at all, and the user provides no information on what questions to ask, or the flow of a conversation, but merely instructions on how to perform an automation task.

337. Nor, despite Dr. Beigi’s contentions, does Allen’s description of how “the user can employ the PLOW’s task database” disclose “defining a conversation” (*See* Ex1014, 12:62-13:5). According to Dr. Beigi, referencing this passage, “[t]he conversation comprises the chatbot (natural language interface) asking questions and then obtaining responses from the user.” (Ex1003, ¶ 154). But all Allen does, in Dr. Beigi’s words, is “ask[] questions related to the requested automation task, such as

“What is the title of the book?” or “authorization step questions” (Ex1003, ¶152) such as “whether the user wishes to complete the transaction” (Ex1014, 13:4-5). This does not mean a conversation is “defined” with a user-generated flow as the ’732 Patent requires. (*See* discussion, *supra* par. 311; *see also* 14:8-14:14 (“On step 320, a conversation flow may be defined. The conversation flow 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 user’s responses, which may be provided in natural language, the control flow conditions on the conversation flow and the like.”))

338. Indeed, there is no indication that a conversation flow is defined at all. Instead, what Dr. Beigi describes is entirely consistent with PLOW simply seeking user input it needs to complete a task. This is also apparent in the fact that, as Mr. Beigi notes, PLOW is designed to respond to a “new task” requested by the user by “recogniz[ing] the user’s intent, and ask[ing] questions related to the associated task.” (Ex1003, ¶153). As discussed, PLOW can, for example, select a “movie” instead of a “book”, despite it never being taught to perform the action. (Ex1014, 10:65-11:6). This all suggests that, rather than “conversations” being “defined”, PLOW simply seeks to perform tasks it has been taught, and is capable of receiving

user input to do so. PLOW's disclosure on how a task is executed does nothing to demonstrate that a conversation is defined, but rather the opposite.

339. For example, during the book buying task, PLOW would not necessarily ask the question "What is the title of the book" as part of a conversation in a natural language interface. Instead, as Dr. Beigi recognized during his deposition, "What is the title of the book?" is presented to the user using a form like the one shown in FIG. 6 (Ex2003, 257:20-24):

50

WHAT IS THE NAME OF THE BOOK YOU ARE LOOKING FOR?

USER ENTRY: 48

FIG. 6

The figure shows a rectangular box containing a form. At the top of the box is the question "WHAT IS THE NAME OF THE BOOK YOU ARE LOOKING FOR?". Below this question is a horizontal rectangular text input field. To the left of this field is the label "USER ENTRY:". A line with the number "50" points to the question text, and another line with the number "48" points to the text input field.

(Ex1014, FIG. 6).

340. Similarly, as a distinct point, there is no indication in Allen that the *user*, as opposed to PLOW itself, defines the information needed to be acquired. This is

illustrated by the fact that, while the system prompts the user with the question: “What is the title of the book?”, (Ex1014, 12:62-13:5) the user never provided this question to the PLOW system in training, merely instructing PLOW in the field in which to place the title: “Enter the Title Here”. (Ex1014, FIG. 3). Moreover, PLOW’s tasks (like “BUY A BOOK”) are not simply the “result[s] of speech recognition, but rather ... independently generated phrase[s] reflecting the system’s understanding of the user’s intent.” (Ex1014, 7:58-63).

341. In paragraph 155 of Dr. Beigi’s declaration, he states that “\$10.99 (for example) is a value for the price parameter, and Jan. 7, 2007 (for example) is a value for the delivery date parameter” (Ex1003, ¶155). However, Dr. Beigi fails to explain how the exemplified book price and delivery date of Allen can allegedly be read on the recited one or more values, which are explicitly obtained from the user to one or more parameters associated with the automation process. Specifically, according to Allen, the book price and delivery date are automatically obtained from an online vendor (Ex1014, 11:55-65, 13:1-5), not from any user. Thus, Allen does not inherently obtain parameter values from a user as part of a conversation.

342. Additionally, while Dr. Beigi argues that there is a conversation because the system is capable of asking different questions for different tasks (giving the example of questions for a hotel search and a book buying task) (Ex1003, ¶155), the

most that Allen discloses is that, where necessary, the system seeks user input in performing a task, for example, by using the form displayed in FIG. 6. This is not a “conversation” as would be understood by a POSITA in view of the ’732 Patent, and it is not implemented by a natural language interface. Instead, it is a system merely seeking information that the system determines required to perform an automation task. Simply because the fact that the PLOW system is capable of being taught, and performing, different automations does not show that a conversation is defined.

343. To the extent Dr. Beigi is attempting to argue that “defining a conversation” is inherently disclosed by Allen because it seeks user input, he fails to articulate reasoning in support of this position. In any event, as explained, the input the automation process seeks is not inherently part of a conversation, nor, if there is a conversation, is the conversation inherently “defined”.

344. Dr. Beigi has also failed to put forward any evidentiary support supporting why element [a] would be obvious in view of Allen.

345. Accordingly, in my opinion, a POSITA as of November 5, 2017 would understand, despite Dr. Beigi’s assertions, that Allen does not disclose, either expressly or inherently, element 1[a], 11[a] and 18[a] of the ’732 Patent. Consistent with Dr. Beigi’s analysis, in my opinion, a POSITA as of November 5, 2017 would also understand that Allen does not render this element obvious.

b. 1[b], 11[b], 18[b] – Allen does not disclose nor render obvious “associating the conversation with the automation process”

346. In my opinion, Allen does not disclose, either expressly or inherently, nor render obvious, element **1[b]**, “associating the conversation with the automation process.”

347. Dr. Beigi argues that Allen discloses element **1[b]** because “the values (title, price, delivery date) obtained from the user during the conversation implemented by the chatbot (natural language interface) are used in the automation process.” (Ex1003, ¶ 156). To clarify, in Allen, the “price” and “delivery date” are obtained from a list of results online as part of the automation of buying a book, not as part of any conversation. (Ex1014, 12:62-13:5). Moreover, Dr. Beigi provides no explanation of why this means that a conversation is associated with the automation process nor how Allen actually associates the conversation with automation process. (Ex1003, ¶ 156).

348. In contrast, the '732 Patent explains, with reference to Step 330 of FIG. 3, how a conversation may be associated with an automation process:

[O]ne or more automation processes may be associated with the conversation. **The 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**. Conversation flows having

branch operations may be associated with more than a single automation process. Additionally or alternatively, a plurality of automation process may be performed sequentially (either immediately one after the other, or with intermediate questions therebetween).

(Ex1001, 14:15-24).

349. What is clear from the '732 Patent's explanation is that associating the defined conversation with an automation process can include determining "which automation process" to "invoke[]" and when with respect to the conversation flow." (Ex1001, 14:16-20). In marked contrast, Dr. Beigi provides *no explanation* of how an automation process is "associated with" a conversation in Allen. (Ex1003, ¶ 156). This further underscores that the alleged conversation of Allen is *not defined*, but rather the result of the PLOW system attempting to obtain a command from a user, in order to carry out a desired automation task.

350. To the extent Dr. Beigi is making an inherency argument, he fails to provide any explanation or evidentiary support for why Allen must have a conversation associated with an automation process. To the contrary, especially since Allen only discloses teaching an automation and performing an automation, it follows that the step of "associating the conversation with the automation process" is not performed, because the automation can be performed without being associated with a conversation.

351. In any event, for the reasons discussed with respect to element 1[a], Allen does not disclose, nor render obvious, “a conversation” which is “defin[ed]”, and so does not disclose, expressly or inherently, “associating . . . the automation process” with that conversation.

352. In sum, in my opinion, a POSITA as of November 5, 2017 would understand that Allen does not disclose “associating the conversation with the automation process”. Dr. Beigi also does not argue or suggest that it would have been obvious in view of Allen. Accordingly, for at least these reasons, Dr. Beigi’s read fails.

c. 1[c], 11[c], 18[c] – Allen does not disclose nor render obvious “the automation process 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”

353. Dr. Beigi improperly relies on the displayed user interface that is used during the training of the PLOW system, such as Figure 7 (Ex1003, ¶¶157-159), as allegedly also being displayed during a task execution. For example, in ¶159, Dr. Beigi recites that “*The system learns by “observing the user's actions.” (EX1014, 6:61-65.) These user actions are interactions that utilize a displayed UI of the computer program*”, although the observation of the user’s action during the training

phase is fundamentally different from, and unrelated to, the recited automation process that utilizing a displayed user interface of a computer program.

354. In the alternative, Dr. Beigi asserts that it would, in any event, be obvious to interact with a Graphical User Interface. (Ex1003, ¶ 161). As motivation, Dr. Beigi points to the teaching in Allen that [a] “graphical user interface (‘GUI’) is preferably provided so that the user can easily monitor the system’s actions”. (*Id.*, citing Ex1014, 4:66-5:1). However, Allen does not suggest that all of GUI 10, or even browser 12, is used to “monitor the system’s actions”. Instead, as Dr. Beigi recognizes, the monitoring occurs using a “task log 16” and “speech interface display 20”:

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.

(Ex1003, 5:14-20). Dr. Beigi does not suggest (nor could he), that either of the “task log 16” or “speech interface display 20” is involved in executing a learned task, or would meet the elements of interactions with text input fields or interacting with a widget in the GUI.

355. Dr. Beigi also ignores how the task monitoring is used in Allen. Rather than monitor task execution, as Allen explains, the task log 16 and speech interface display 20 “allow the user to monitor **his or her interaction with PLOW**” (Ex1014, 15:19-20) which enables the user to understand “whether PLOW has correctly understood the present objective” being learned. (Ex1014, 5:60-62). This allows the user to take “corrective action” while teaching PLOW. (Ex1014, 7:64-8:5). For example, the user can correct PLOW if it erroneously displays “BUY A BOX” in the task log instead of “BUY A BOOK”. (*Id.*).

356. In short, despite Dr. Beigi’s assertions that “the system’s actions would have to involve interaction with a GUI” “in order for the user to easily monitor the system’s actions” (Ex1003, ¶ 161), Allen’s disclosure on monitoring does not teach monitoring interactions with a GUI during execution, but instead interactions between the user and PLOW during training. Allen does not provide a motivation to modify Allen as Dr. Beigi suggests.

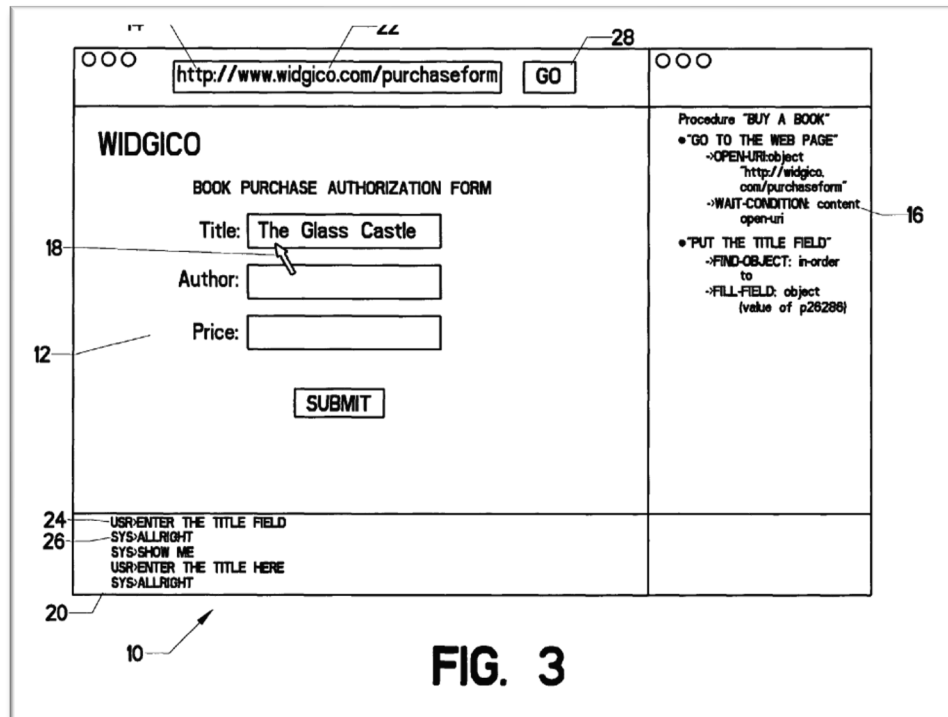
357. In sum, in my opinion, a POSITA as of November 5, 2017 would understand that Allen’s tasks can be executed in various ways, without inherently using a displayed user interface of a computer program. Nor has Dr. Beigi shown this element to be obvious. Accordingly, for at least these reasons, Dr. Beigi’s read fails.

d. 1[d], 11[d], 18[d] – Allen does not disclose nor render obvious “publishing the conversation to be accessible to a user via the natural language interface”

358. Dr. Beigi asserts that “Allen discloses element 1[d]” (Ex1003, ¶164) because, with reference to the conversation in which a user teaches the PLOW system how to buy a book, “Allen’s system publishes the user’s speech 24 in the speech interface display 20” and “publishes the system’s speech 26, thereby publishing the conversation”. (Ex1003, ¶¶162-163). Dr. Beigi also argues, with reference to the system seeking and receiving user input, that the “user is enabled to interact with the natural language interface in accordance with the conversation.” (Ex1003, ¶164). Even setting aside the fact that Allen does not disclose “the [defined] conversation”, and thus does not disclose element 1[d], Dr. Beigi’s analysis is severely flawed, for several reasons.

359. First, Dr. Beigi applies a fundamentally distorted view of the word “publishing” in applying the read from Allen. As I discuss with respect to how a POSITA as of November 5, 2017 would understand, in accordance with the plain and ordinary meaning, the element “publishing” (*see pars. 119-121, supra*), publishing relates directly to the act of making a defined conversation available to a chatbot. It does not mean, as Dr. Beigi seems to indicate, making the “user’s speech 24” and the “system’s speech 26” available to the user via a GUI.

360. Next, Dr. Beigi’s reliance on “user speech 24” and “system’s speech 26” to show that the “publishing” element is met (Ex1003, ¶¶162-163) ignores that the purportedly published conversation is actually related to training PLOW. As previously discussed, as shown in FIG. 3, the text relates directly to training the chatbot – a step which, even assuming a conversation is defined, would occur *before* the publishing step:



(Ex1014, FIG. 3).

361. Finally, the steps of Claims 1, 11, and 18 are ordered. Dr. Beigi in his analysis ignores this order, and thus does not explain how the Allen teaches this

order. It follows, from the grammar of the claim, that the steps first provide for “defining an automation process” in the Preamble, and then “defining a conversation”, and then “associating the conversation with the automated process” (thus recognizing the automation process and conversation must already be defined), and concludes with “publishing the conversation to be accessible to a user via the natural language interface.” This order of steps is thus called out by the claim language, and consistent with the order shown in FIG. 3. In marked contrast, there is no explanation of any of these steps, let alone such ordering in Allen, even assuming the functions are met. Indeed, in my opinion, the most natural reading of Allen to a POSITA as of November 5, 2017 is that the conversation is developed on the fly using the ontological properties of the task in the database, rather than using the claimed process.

362. In any event, for the reasons discussed with respect to element 1[a], Allen does not disclose, nor render obvious, “a conversation” which is “defin[ed]”, and so does not disclose, expressly or inherently, “publishing the conversation”.

363. In sum, in my opinion, a POSITA as of November 5, 2017 would understand that Allen does not disclose “publishing the conversation to be accessible to a user via the natural language interface” as required by elements 1[d], 11[d] and

18[d]. Dr. Beigi also does not argue or suggest that it would have been obvious in view of Allen. Accordingly, for at least these reasons, Dr. Beigi's read fails.

3. Claims 2, 12, 19 – Allen does not disclose or render obvious “wherein said defining comprises determining a conversation flow, wherein the conversation flow defines an order between conversation elements, wherein the conversation elements comprise at least a question element and an action element, wherein the action element is associated with the automation process.”

364. Representative Claim 2 provides: “The method of claim 1, wherein said defining comprises determining a conversation flow, wherein the conversation flow defines an order between conversation elements, wherein the conversation elements comprise at least a question element and an action element, wherein the action element is associated with automation process.” Claim 12 and 19 feature the same elements except that Claim 12 depends from Claim 11 and Claim 19 depends from Claim 18. (*See* Ex. 1003, ¶127).

365. At the outset, I note that Claim 2 is dependent on Claim 1 and thus, to the extent that Allen fails to disclose or render obvious Claim 1, it likewise fails to do so for Claim 2. However, as discussed below, Claim 2 is not disclosed by or rendered obvious by Allen for additional reasons. This same analysis applies with respect to Claims 12 and 19 with respect to Claims 11 and 18.

366. In particular, this requires not only that the conversation be defined as set forth in Claim 1, but also have a conversation flow which defines a question element and an action element, as well as the order of such elements, where the action element is associated with the automation process. In my opinion, a POSITA as of November 5, 2017 would understand that Allen does not teach an action element, nor an order between elements which is defined as part of the conversation flow. Further, in my opinion, Dr. Beigi in his analysis confuses the automation process (“inputting the book title in the title input field”) with the “action element” that is displayed as part of the conversation.

367. Dr. Beigi identifies a question element as “the chatbot ask[ing] questions” (e.g., asking “for the books title”, Ex1003, ¶167), and the action element as “associated with the user’s answers responding to the chatbot’s questions” (e.g., “inputting the book’s title in the title input field”, Ex1003, ¶169). (Ex1003, ¶¶167-68). At the outset, I note that a POSITA as of November 5, 2017 would understand that the question, and the user’s answer, are not part of a “conversation flow” in a “conversation” but instead a form similar to FIG. 6. (Ex2003, 257:20-24).

368. In any event, Dr. Beigi’s analysis is otherwise flawed. “inputting the book’s title in the title input field” is a step in the automation process, not an “action element” in the conversation used to invoke or trigger the automation process. Thus,

in my opinion, Dr. Beigi fails to properly identify any “action element” as part of the conversation.

369. Dr. Beigi also fails to show that Allen discloses or renders obvious “determining a conversation flow, wherein the conversation flow defines an order between conversation elements”.

370. To show this part of the claim is disclosed by Allen, Dr. Beigi points to PLOW’s “intent recognition component” (Ex1003, ¶170, citing Ex1014, 3:19-21), and argues that the PLOW “system asks questions to obtain values for parameters for corresponding ontological properties, determining the conversation flow based on the user’s intent so that it is able to execute the correct automation task.” (Ex1003, ¶170, citing Ex1014, 3:47-56). Additionally, per Dr. Beigi, “if the system determines that the user’s intent is for the system to buy a book, it determines the conversation flow as comprising questions for obtaining the ontological properties, here, the title and author of the book.” (Ex1003, ¶170, citing Ex1014, 7:2-6, 11:33-40, 12:64-66). Dr. Beigi’s analysis takes these passages totally out of context; none disclose “determining a conversation flow.”

371. To the contrary, all but one of the cited passages merely relates to the process of teaching the Procedural Learning system “PLOW” to perform an automation, which, as discussed above, does not constitute defining a conversation.

For example, as Allen explains, the cited “intent recognition” of the “user input” is meant to “**allow a user to teach a computational device** how to perform complex, repetitive tasks”, not define a conversation flow:

The present invention comprises **a system which allows a user to teach a computational device how to perform complex, repetitive tasks**. The system includes software running on a user's computational device. The user provides input to the software in at least two distinct ways. First, the user speaks to the computer or types words into the computer using natural language. A language understanding module interprets the language and produces a semantic representation based on some ontology. Second, the user demonstrates certain actions. The demonstrated actions include things like moving a pointing device to demonstrate a location, actuating a button on a pointing device to make a selection, and typing characters on a keyboard.

The software receives the user's input and processes the input through an intent recognition component, which seeks to determine what the user wishes to do.

Ex1014, 3:6-21; *see also* Ex1014, 7:24-8:14 (explaining how the intent recognition module operates in the context of teaching various automations).

372. Similarly, Dr. Beigi’s citation to the identification of input parameters using “ontological properties” is in relation to PLOW’s learning process, not

determining a conversation flow or defining a conversation. (Ex1014, 3:46-56). As apparent from the context, the PLOW system translates teaching commands (“Let me teach you how to buy a book”) into ontological concepts as part of the learning phase using objects in HTML code. (Ex1014, 3:33-40). The same can be said for the passages at Ex1014, 7:2-6 (describing how PLOW learns using an ontology of tasks), as well as EX1014, 11:33-40 (identifying how ontological concepts are used to determine input parameters as part of the learning process).

373. Moreover, the fact that PLOW can, after learning a task, “perform the steps it was previously taught to complete the transaction” (Ex1014, 12:64-66) does not demonstrate that Allen discloses a defined conversation flow, but only that the taught automation processes can be performed.

374. Nor does Allen expressly or inherently disclose defining a conversation flow in any particular order. Dr. Beigi, while reciting the claim language that “the conversation flow defines an order between conversation elements”, does not provide any explanation, besides quoting the segments of Allen discussed above, as to how the **order** of the elements is determined to be shown by Allen. In my opinion, a POSITA as of November 5, 2017 would understand that Allen does not disclose a method or means of defining the order of all of the elements of the conversation. This makes sense – Allen is directed to teaching PLOW to perform an automation

task, not to defining a conversation for a chatbot. For Allen's purposes, what matters is that the information is obtained by PLOW, not how the information is obtained.

375. Dr. Beigi assertion that "if the system determines that the user's intent is for the system to buy a book, **it determines the conversation flow . . .**" (Ex1003, ¶170), appears to be an incomplete inherency argument, which does not confirm that importantly the order of the conversation is necessarily being defined as part of the conversation flow. Nothing that Dr. Beigi identifies or indicates that in defining the automation process of buying a book, a user or any other entity necessarily defines what questions elements are to be presented and in what order, let alone whether an action element is presented.

376. Dr. Beigi also points to another portion of Allen, related to teaching PLOW how to perform iterative processes such as web searches, as purportedly demonstrating a conversation flow in a defined order. However, the iterative processes are part of the automation process, not of any conversation definition process. Dr. Beigi asserts that, as an example of a "different conversation flow", "the system may determine that the user's intent is for the system to search for a hotel, it determines the conversation flow as comprising questions to obtain an address and proximity information." (Ex1003, ¶171, citing Ex1014, 16:36-54). Dr. Beigi provides a specific example the user searching for "hotels which are near the address

‘1018 E. De Soto St. Pensacola, Fla. 32501-3362.’” (Ex1003, ¶171, quoting Ex1014, 16:33-45). Dr. Beigi’s analysis is flawed. This conversation is an entirely different conversation from the conversation of buying a book example he previously references, regardless of defined order between conversation elements. Dr. Beigi offers no motivation or rationale why a POSITA as of November 5, 2017 would be motivated to modify Allen to define either of these conversations (the book and hotel examples) as conversation flows with a defined order of elements.

377. Here again, as with training PLOW to buy a book, this passage relates to teaching PLOW when to stop performing a repetitive task (which is not an issue in the buying a book example he previously relied upon) like aggregating search results. While Dr. Beigi provides only a brief excerpt of this section from Allen to suggest it is part of a “conversation”, Allen actually explains the search is done “as part of teaching PLOW how to automate such a search for future use”:

The first two conditions are self-explanatory. The third termination condition may be best understood using an example: In this example, a user conducts a search on the website known as “MAPQUEST.COM.” Specifically, the user searches for hotels which are near the address “1018 E. De Soto St. Pensacola, Fla. 32501-3362.” **The user naturally does this as part of teaching PLOW how to automate such a search for future use.** By this point, the reader has a thorough understanding of how the user interacts with PLOW to open a new task and navigate

to the appropriate website. Thus, only the new concepts will be described in detail. The reader can review what has been taught and learned in the task log shown on the right of FIG. 12.

Ex1014, 16:33-45.

378. In other words, avoiding repetitive tasks relates to the automation process, not the conversation. Thus, Dr. Beigi still has not identified an ‘action element’ in a single conversation which also has a “question element” in a defined order.

379. Accordingly, in my opinion, a POSITA as of November 5, 2017 would understand that, to the extent PLOW seeks user input (like proximity), it is for the purpose of learning how to perform an automation, not as part of the processing of defining a conversation including its question element, action element, and the order of such elements.

380. Finally, whatever means of obtaining information is ultimately utilized by the system to buy a book or conduct a search, to the extent the Board agrees that the “defining” process requires a user to be involved in such defining, Dr. Beigi admits, “the system . . . determines the conversation flow . . .” (Ex1003, ¶171). Thus, the alleged conversation flow would not be done by a user or by any entity external to PLOW.

381. In my opinion, a POSITA as of November 5, 2017 would understand that Dr. Beigi's analysis with respect to "buying a book" and "conducting a search" are related to two different conversations, and Dr. Beigi has not identified for each conversation: (1) any processing for defining the conversation identified; (2) an "action element" of such conversation, in contrast to the "automation process" (e.g. entering a title or an address); (3) defining an "order" of the elements to be presented in the conversation; or (4) the "user" defining the conversation and its order, in contrast to the system automatically determining a conversation using some undefined programming or processing, and thus all fail to disclose the elements of claim 2.

382. I note that Dr. Beigi does not propose an obviousness combination of what how a POSITA as of November 5, 2017 would modify Allen's system, nor a motivation or reason to do so.

383. Accordingly, in my opinion, a POSITA as of November 5, 2017 would understand that claim 2 is not disclosed, either inherently or expressly, nor rendered obvious, by Allen.

4. Claims 3, 13 – Allen does not disclose or render obvious “the conversation elements compris[ing] at least one of: a message element and a condition element.”

384. Representative Claim 3 provides: “The method of claim 2, wherein the conversation elements comprise at least one of: a message element and a condition element.” Claim 13 has the same elements except that it depends from claim 12. (*See* Ex. 1003, ¶ 200).

385. At the outset, I note that Claim 3 is dependent on Claim 2 and thus, to the extent that Allen fails to disclose or render obvious Claim 2, it likewise fails to do so for Claim 3. However, as discussed below, Claim 3 is not disclosed by or rendered obvious by Allen for additional reasons.

386. Claim 3 builds upon the conversation defined in Claim 2 to require not only that the same conversation has a “question element” and an “action element” but also “a message element” and “a condition element”. In total, the claim requires defining a single conversation with at least distinct types of 4 elements.

387. As discussed above (*see* pars. 126-134, *supra*), in my opinion Dr. Beigi has misread the claim’s requirement of “**at least one:** a message element **and** a condition element” as requiring in the alternative “a message element” and “a condition element” instead of at least one message element and at least one condition element. (Cf. Ex1003, ¶ 172 (“having one (a message element, a condition element, or both) satisfies the claim.”)).

388. I disagree. In my opinion, a POSITA as of November 5, 2017 would also disagree. In my opinion, as discussed above (*see* pars. 126-134, *supra*), consistent with the grammatical principles outlined by the Federal Circuit and the disclosure of the '732 Patent, a POSITA as of November 5, 2017 would understand that “at least one of: a message element and a condition element” as used in Claims 3 and 13, requires at least one message element and at least one condition element.

389. Thus, under the proper construction, Dr. Beigi needs to identify a single “defined” conversation that includes not only a “question element”, and an “action element” associated with an “automation process” (as required in Claim 2), but also a “message element” and a “condition element” (as further required in Claim 3) as part of the same conversation. While a POSITA as of November 5, 2017 would understand that such conversation can have more than one of each of these elements, it must include at least one of each element.

390. Dr. Beigi’s analysis is further flawed. Allen does not teach a message element, does not teach a condition element in the same conversation as a message element, and does not teach defining an order for message and condition elements.

391. In the first instance, Dr. Beigi’s analysis of the message element is off base. He asserts Allen discloses a message element because Allen teaches “provide[s] [price and delivery] information back to the user.” (Ex1003, ¶173,

citing Ex1014, 13:2-5, brackets in the original). However, Dr. Beigi cuts Allen's disclosure short, and the full sentence Dr. Beigi cites indicates that the information is provided as part of an authorization step:

As an example, the user could teach the system to obtain price and delivery date information, then provide this information back to the user **and ask whether the user wishes to complete the transaction.**

Ex1014, 13:2-5 (emphasis added).

392. Dr. Beigi characterized this authorization step as a question element in his discussion with respect to Claim 2: "the chatbot asks questions, *e.g.*, . . . for authorization to complete the transaction based on the obtained price and delivery date information . . . the chatbot asking the user questions means the conversation elements comprise a question element." (Ex1003, ¶167). Claim 3 is dependent on Claim 2, and Claim 13 is dependent on Claim 12, meaning that the conversation must have both a question element and a message element (in addition to an action element and a condition element). If, as Dr. Beigi suggests, the authorization step constitutes a question element, it cannot also constitute a message element, and the claim element is accordingly not met.

393. Dr. Beigi provides, as another example, the disclosure of Allen wherein PLOW "provides information back to the user" by the "intent recognition

component” such as “querying statements if the intent recognition component is unable to discern the user’s intent, or confirming statements if the user’s intent has been established.” (Ex1003, ¶173, citing Ex1014, 3:21-25). However, as discussed in relation to Claim 2 (*see* pars. 364-383, *supra*), the cited discussion concerning the “intent recognition component” concerns using the user’s input to teach PLOW to perform an action. This is further confirmed by the detailed description, which provides various examples of messages from the intent recognition module – all in the context of PLOW learning, not pursuant to a defined conversation flow. *See, e.g.*, Ex1014, 7:24-8:14 (explaining how the intent recognition module operates in the context of teaching PLOW where to click, where to put a title, buying a book, and going to a webpage). In my opinion, a POSITA as of November 5, 2017 would thus understand that reports from the intent recognition module are not messages in a defined conversation.

394. Next, regardless of whether Allen discloses a message element, it does not disclose a condition element that is part of the same conversation. As discussed, Claim 3 requires defining a conversation that has both a message element as well as a condition element (in addition to the question element and action element of claim 2). However, Dr. Beigi’s example of a condition element, namely determining when to stop searching (Ex1003, ¶ 174, citing Ex1014, 16:24-32), is in the context of

performing an iterative process, such as searching for hotel, not the process of buying a book. Dr. Beigi's condition, as discussed, is also in the context of teaching the PLOW system how to perform an iterative process, not in the context of a conversation. For example, with respect to numeric value comparison, one of the conditions identified by Dr. Beigi, Allen provides an example concerning "teaching PLOW how to automate . . . a search for future use." (Ex1014, 16:38-40). Accordingly, Dr. Beigi has not identified any conversation in which he demonstrates each of the four types of elements are present, let alone defined by the user.

395. Finally, claim 2 and claim 3 together expressly requires "the conversation flow" to "define[] an order between conversation elements" (Ex1001, 22:41-42), where the conversation elements include a "question element", an "action element", a "message element" and a "condition element." (Ex1001, 22:43-48). However, Dr. Beigi fails to even assert that Allen discloses defining an order with respect to a message element or with respect to an action element. This is not surprising, since the examples Dr. Beigi provides of these supposed conversation elements are related to teaching PLOW, not defining a conversation, and thus would not have a defined order.

396. Dr. Beigi also fails to identify how the conversation in Allen would be obvious. In my opinion, a POSITA as of November 5, 2017 would not find dependent claim 3 obvious.

397. Accordingly, in my opinion, Allen does not disclose or render obvious Claims 3 or 13 of the '732 Patent.

5. Claims 4, 14– Allen does not disclose or render obvious “wherein the conversation elements comprise a second action element associated with a second automation process, whereby the natural language interface is configured to selectively invoke either the automation process or the second automation process based on interaction with the user.”

and

Claims 5, 15 – Allen does not disclose or render obvious “[a] wherein the natural language interface is associated with a plurality of conversations, wherein the plurality of conversations comprise the conversation; [b] wherein each of the plurality of conversations is associated with one or more terms, [c] wherein the natural language interface is configured to select a conversation from the plurality of conversations based on a user intent matching the one or more terms, [d] wherein the user intent is determined based on interaction of the user with the natural language interface”

398. Representative Claim 4 provides: “The method of claim 2, wherein the conversation elements comprise a second action element associated with a second automation process, whereby the natural language interface is configured to selectively invoke either the automation process or the second automation process

based on interaction with the user.” Claim 14 has the same elements except that it depends from claim 12. (*See* Ex. 1003, ¶201).

399. Representative Claim 5 provides: “[a] The method of claim 1, wherein the natural language interface is associated with a plurality of conversations, wherein the plurality of conversations comprise the conversation; [b] wherein each of the plurality of conversations is associated with one or more terms, [c] wherein the natural language interface is configured to select a conversation from the plurality of conversations based on a user intent matching the one or more terms, [d] wherein the user intent is determined based on interaction of the user with the natural language interface.” (Ex1001, 22:55-64, 23:66-24:8 ([a], [b], [c], [d] supplied by Dr. Beigi)).

400. At the outset, I note that Claim 4 is dependent on Claim 2 and Claim 14 is dependent on Claim 12. Claims 2 and 5 are both dependent on Claim 1, and Claims 12 and 15 are both dependent on Claim 11. To the extent that Allen fails to disclose or render obvious Claims 1 or 11, it likewise fails to do so for Claims 4, 5, 14 and 15. Similarly, to the extent that Allen fails to disclose or render obvious Claims 2 or 12, it likewise fails to do so for Claims 4 and 14.

401. Allen also does not teach the additional elements of Claim 4, 5, 14 and 15. Dr. Beigi’s assertions to the contrary are flawed. As I discuss below, he asserts

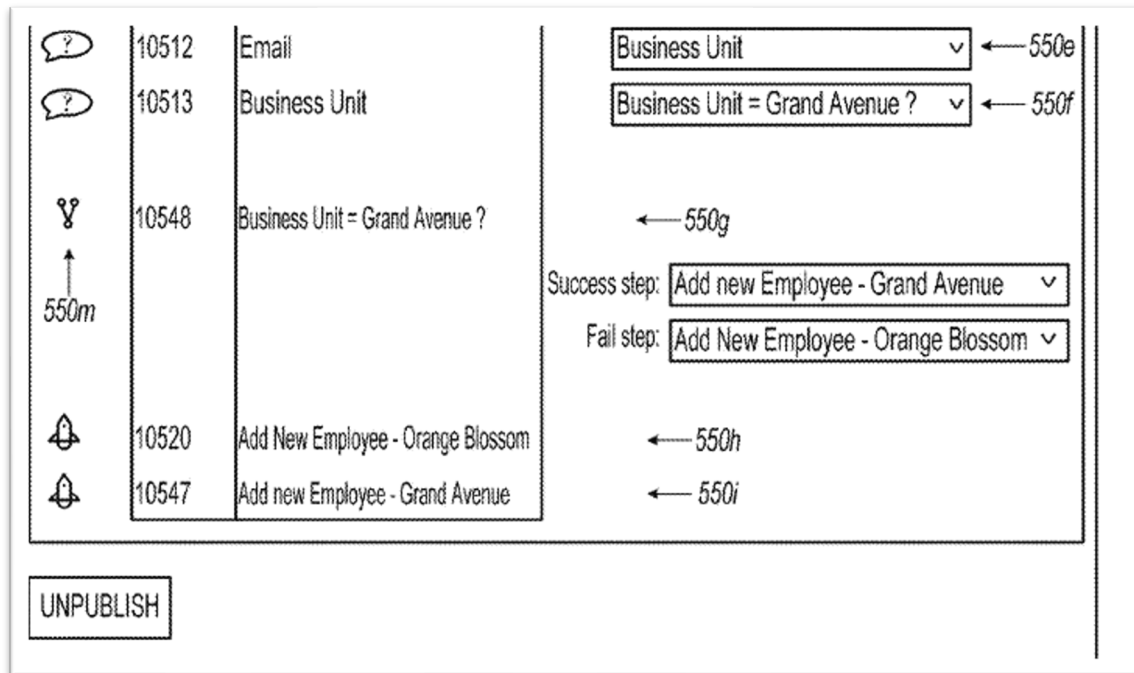
that certain actions occur within a single conversation for purposes of meeting Claims 4 and 14 but occur within a plurality of conversation for purposes of meeting Claims 5 and 15. In reality, Allen teaches neither, and, as shown by these contradictory positions, neither is inherent in Allen.

a. Claims 4 and 14 Are Distinct From Claims 5 and 15

402. Claim 4 builds on Claim 2 (and Claim 14 on Claim 12) by requiring that the defined conversation includes and is configured to select from at least two action elements, both associated with an automation process based on interaction with the user. This claim is distinct from Claims 5 and 15, which requires associating the natural language interface with a plurality of conversations and selecting a conversation based on user intent, which a POSITA as of November 5, 2017 would understand could also result in different automation processes ultimately being executed. (*Compare* Ex1001, Claim 4, 22:49-54 *with* Claim 5, 22:55-64).

403. The specification of the '732 Patent provides illustrative examples of both processes. With respect to defining a conversation flow of a single conversation with two action elements, Allen provides FIG. 5B to show they can be configured to be selectively invoked. As shown in FIG. 5B, a user using the chatbot editor to define a conversation has defined the conversation flow to include two distinct action steps,

“Add New Employee – Orange Blossom” and “Add new Employee – Grand Avenue”, selected based on an interaction with the user:



(Ex1001, '732 Patent, Excerpt of FIG. 5B)

404. As the specification of the '732 Patent explains, the “business unit [is] obtained from the user” at Step 550f, at which point a condition step is evaluated, resulting in either the “Success step” or “Fail step” being taken. (Ex1001, 16:22-32). The “success step” and “fail step” are associated with different action elements, such that, “[i]n the illustrated example, the conversation could end in an execution of one of two automation processes.” (Ex1001, 16:34-36).

405. With respect to associating a natural language interface with a plurality of conversations, the '732 Patent explains that a bot (e.g., "HRExpert" bot in FIG. 4B) can "add or remove conversation" from the set of "Conversation 446" (Ex1001, 14:61-64):

← Bots
HRExpert

405 505
>Bots
>Conversations
>Connections
599

440

Bot Settings

* Name
HRExpert 442

* Greeting Messages
Hi! How can I help you today? Please remember I'm a bot. 444

* Assign Conversations (3) 446b 446c 446

446a Open New Requisition x Add Expenses x Add New Employee x

* Set conversation as suggested

Open New Requisition x Add Expenses x Add New Employee x

Accept Suggested Conversations Only 448

450 ☒

* Message When No Matched Conversations 452

I'm sorry I didn't get your answer, I'm only a bot. Try to be more specific

(Ex1001, '732 Patent, Excerpt of FIG. 4B)

406. In my opinion, a POSITA as of November 5, 2017 would understand that each of the conversations displayed (“Open New Requisition”, “Add Expenses” and “Add New Employee”) would be configured to invoke different automation processes from one another. Each of the conversations displayed is intended to result in the execution of different processes. Each automation process must be different because they are designed to achieve different outcomes. The conversations that activate them would by necessity differ, not in the least because of the use of different parameters.

407. Thus, consistent with the provided examples, as well as the express languages of the claim, in my opinion, a POSITA as of November 5, 2017 would understand that Claims 4 and 14 requires the two action elements to be included in the definition of the same conversation, as opposed to different conversations. At the same time, Claims 5 and 15 require, among other elements, that different conversations, which can each be associated with an automation process, are associated with the claimed natural language interface.

b. Allen does not teach Claims 4 & 14 or Claims 5 & 15

408. As demonstrated, while both sets of claims may ultimately result in different automation processes being invoked depending on user input, Claims 4 and 14 do so in the context of a single conversation, while Claims 5 and 15 do so in the

context of a plurality of conversations. Dr. Beigi fails to show that Allen teaches either.

409. With respect to Claims 4 and 14, Dr. Beigi fails to show that Allen discloses or renders obvious a conversation with two different action steps, one of which is selectively invoked based on an interaction with the user as part of the conversation. Dr. Beigi asserts: “the natural language interface is configured to selectively invoke the book buying task (automation process), hotel searching task (second automation process) or another task (based on the interaction with the user).” (Ex1003, ¶ 179). As an initial point, as with his discussion on Claim 2, Dr. Beigi does not identify any action elements, but instead only automation processes, and thus fails to show that Allen discloses the claim elements.

410. More significantly here, the tasks that Dr. Beigi identifies are not expressly identified as part of the same embodiment or conversation. Allen does not disclose buying a book (the asserted automation process) in the same dialogue as searching for a hotel (the asserted second automation process), nor does it disclose selectively invoking one or the other.

411. Dr. Beigi’s analysis with respect to Claim 5 is similarly flawed. He provides the exact same examples of a “book buying task” and a “hotel searching task” recasting these not as different actions steps, but as different conversations.

(Ex1003, ¶ 180). That Allen is assertedly permeable to such inconsistent interpretations only underscores that it does not expressly disclose whether performing the tasks it learns would be done as part of the same conversation, or part of two separate conversations. Indeed, as I have discussed, Allen demonstrates how to train PLOW to perform an automation, and provides scant disclosure on implementing the task in the context of a conversation, let alone any disclosure for a plurality of conversations.

412. By the same token, it follows that Allen does not inherently disclose the elements of claims 4 and 14 or of claims 5 and 15. Simply because PLOW can perform both a book buying task and a hotel searching task does not mean that it necessarily selectively does so as part of the same conversation, or necessarily selectively does so as part of two different conversations. The fact that Dr. Beigi relies on the same disclosure as purportedly supporting that it is taught belies any inherency argument that he may be trying to make.

413. Dr. Beigi does not assert or otherwise identify how Claims 4 and 14, or 5 and 15, would be rendered obvious by Allen, only asserting that Allen discloses these claims. In my opinion, a POSITA as of November 5, 2017 would not find any of the claims to be obvious in view of Allen.

414. Accordingly, in my opinion, Allen does not disclose or render obvious Claims 4 and 14, or 5 and 15, of the '732 Patent.

6. Claim 9 – Allen does not disclose or render obvious “the automation process is configured to execute a new functionality of the computer program, wherein the new functionality is defined based on the values to the one or more parameters, without relying on a dedicated Application Programming Interface”

415. Claim 9 provides: “[a] The method of claim 1, wherein the automation process is configured to execute a new functionality of the computer program, wherein the new functionality is defined based on the values to the one or more parameters, [b] without relying on a dedicated Application Programming Interface.” (Ex1001, 23:14-19 ([a] and [b] supplied by Dr. Beigi in his analysis of Claim 9).

416. Dr. Beigi asserts claim 9 is met by the ability in Allen to add new steps to an automation process. (Ex1003, ¶187). But that is not what Claim 9 is directed to. Rather, claim 9 requires execution of “a new functionality **of the computer program**”. (Emphasis added). Dr. Beigi has not offered any discussion of what the alleged “new functionality of the computer program” is in Allen as opposed to new steps in the automation process. For this reason, Dr. Beigi has failed to show Allen teaching or suggesting this aspect of Claim 9.

D. GROUND 4 – “Allen and Ben-Itzhak [Purportedly] Render Obvious Claims 6, 16 and 21” Fails

417. In my opinion, as I discuss below, a POSITA as of November 5, 2017 would understand that Allen and Ben-Itzhak do not disclose, either expressly or inherently, nor render obvious, Dependent Claims 6, 16, and 21 of the '732 Patent. These claims depend, respectively from Independent Claims 1, 11, and 18, and are not obvious for the reasons that Independent Claims 1, 11 and 18 are not obvious.

418. Additionally, as discussed below, the proposed combination fails, both because none of the cited references disclose that the “interaction with the link is configured to cause execution of the automation process” as required by the claims, and because a POSITA as of November 5, 2017 would not have been motivated to combine the references as proposed.

1. Claims 6, 16, 21 – “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”

419. Dr. Beigi’s proposed combination of Allen and Ben-Itzhak is insufficient because he fails to identify a reference which teaches that “interaction with the link is configured to cause execution of the automation process”. Neither Ben-Itzhak nor Allen teach this element of claims 6, 16 or 21.

420. With respect to Ben-Itzhak, Dr. Beigi only asserts that the references provides “a natural language interface implemented by a third-party messaging service” (Ex1003, ¶ 212) as well as “generat[ing] personalized content recommendations and provid[ing] an association URL link to the user” to allow the user “to receive personalized content recommendations.” (Ex1003, ¶ 213). Notably, Dr. Beigi does not assert that Ben-Itzhak teaches that “interaction with the link is configured to cause execution of the automation process”, as required by claims 6, 16, and 21.

421. Dr. Beigi also fails to point to any aspect of Allen which teaches that “interaction with the link is configured to cause execution of the automation process” (Ex1003, ¶ 214). While Dr. Beigi asserts that Allen “discloses using links to transfer information”, (Ex1003, ¶ 214) the cited support (that, in embodiments, Allen is configured to “function in a web-based environment in which information is transferred using HTML, XHTML, CSS, and/or scripts” (Ex1003, ¶ 214, citing Ex1014, 3:28-31)), does not refer to using a link, or even performing an automation, but instead “us[ing] all the code . . . in learning a step in the task.” (Ex1014, 3:33-35). To the extent Allen discloses transfer of information, it is not in the context of causing execution of an automation.

422. In sum, neither Ben-Itzhak, nor Allen, teach a link which, when clicked on or otherwise interacted with, is configured to cause execution of an automation process.

423. Accordingly, in my opinion, particularly since Dr. Beigi does not identify a reference which teaches the element that “interaction with the link is configured to cause execution of the automation process”, a POSITA as of November 5, 2017 would understand that Dr. Beigi’s proposed combination does not teach all of the elements of Claim 6, 16, or 21.

2. Ben-Itzhak Is Non-Analogous Art to the ’732 Patent

424. For the reasons stated above under Ground 2 (*see* pars. 276-286), *supra*, in my opinion, a POSITA as of November 5, 2017 would not understand that Ben-Itzhak (Ex1034) is analogous art to the ’732 Patent.

3. Dr. Beigi Fails To Identify In His Declaration How He Asserts A POSITA Would Modify the Prior Art

425. As noted with respect to other combinations that Dr. Beigi proposes, in his Declaration, Dr. Beigi fails to explain how he proposes a POSITA as of November 5, 2017 would modify Allen in view of Ben-Itzhak. *Cf.* Ex1003, ¶¶ 212-213.

426. At his deposition, Dr. Beigi indicated that he is proposing to “modify Allen to have a conversation to generate personal recommendations as taught in Ben-

Itzhak”. (Ex2003, 312:23-313:8). While he identified Paragraphs 212-213 of his Declaration (Ex1003) to set out this modification, I could not find any support for that proposition. But more importantly, I do not think that such a modification makes sense in view of the disclosure of Allen, which requires an automated process that is capable of being trained by a user, which Ben-Itzhak’s content recommendation does not. Further, even if Allen were modified to invoke a content recommendation engine, I do not see how such a modification would result in the Allen utilizing “a third-party messaging service” or having its “natural language interface” being configured to “generate and provide the user with a link” “configured to cause execution of the automation process”. His analysis makes no sense and does not meet the claim elements.

4. A POSITA Would Not Have Been Motivated to Combine Ben-Itzhak with Allen

427. Dr. Beigi also fails to identify a proper motivation to combine Ben-Itzhak with Allen. In my opinion, a POSITA as of November 5, 2017 would not have been motivated to combine Ben-Itzhak with Allen.

428. Indeed, Dr. Beigi fails to even assert that a POSITA would be motivated to combine Allen and Ben-Itzhak, instead only arguing that “[i]t would have been obvious to combine Allen and Ben-Itzhak at the time of the ’732 patent priority date.” (Ex1003, ¶ 214). That said, it appears that Dr. Beigi is asserting that a

combination of the two references would be obvious because “[c]ausing execution of an automation process by interacting with a link helps the user consume the content associated with the link” (*Id.*). This is non-sensical. A link does not need to be configured to cause execution of an automation process in order to allow a user to consume the content associated with the link – it need only allow the user to access the content therein, which is the ordinary function of a URL link. Ben-Itzhak would not be improved by making the link cause an automation process to be executed.

429. Nor does Dr. Beigi provide a reasoned explanation for how Allen would be improved by Ben Itzhak. As discussed, Allen is dedicated towards providing a procedural learning system (“PLOW”), which includes an interface to allow the user to communicate with the system, while also demonstrating actions. (Ex1014, 5:41-51). Dr. Beigi fails to explain how the PLOW system would benefit from a “third-party” natural language interface, which would only serve to increase costs. In the same vein, Dr. Beigi fails to explain how using a link to cause execution of an automation process would improve the PLOW system. Dr. Beigi asserts that it would be obvious to implement a third-party service with Allen which would then utilize a link to implement the automated process. But this proposed modification of Allen is counter to the teaching in Allen that “speech recognition is preferred for its convenience.” (Ex1014, 5:30-31). In my opinion, a POSITA as of November 5,

2017 would be discouraged from implementing a link in Allen, which could not be implemented using the preferred embodiment of using speech recognition.

430. Accordingly, in my opinion, a POSITA as of November 5, 2017 would understand that neither Allen, Ben-Itzhak, nor the combination thereof, discloses or renders obvious Claims 6, 16 or 21 the '732 Patent.

E. GROUND 5 – “Krishnan and Radhakrishnan [Purportedly] Render Obvious Claims 1-5, 9-15 and 18-20” Fails

1. Summary of Krishnan

431. In support of Ground 5 of the Petition, Dr. Beigi also identifies U.S. Patent No. 10,839,798, to Krishnan et. al (“Krishnan”, Ex1016), which was filed on January 30, 2018, after the priority date of the '732 Patent. As Petitioner notes, the Examiner cited Krishnan during prosecution and nonetheless found that the claims of the '732 Patent were patentable. (Paper 2, Petition at 57).

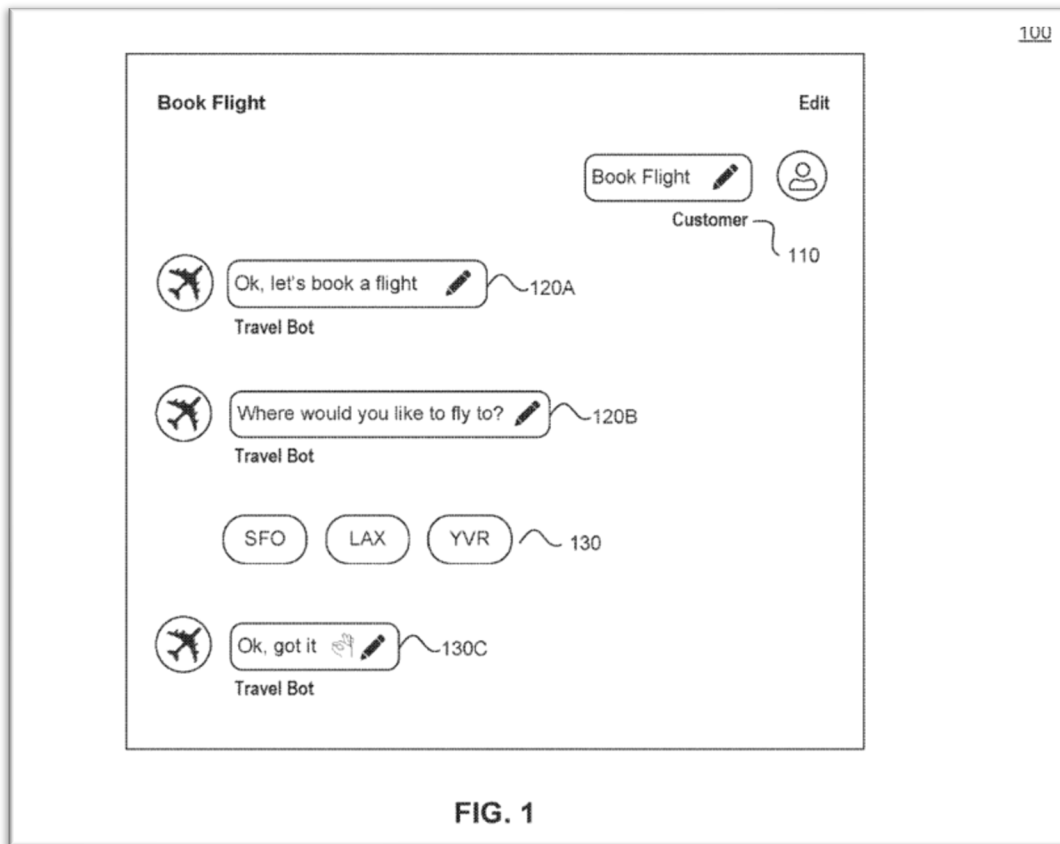
432. Krishnan claims priority to U.S. App. No. 62/581,550 (“’550 Application”, Ex1017), which was filed on November 3, 2017. While Dr. Beigi sets forth what he asserts is support for the issued claims in Krishnan from the '550 Application (Ex1003, Table 1, at 125-129) as well as some specific subject matter. (Ex1003, Table 2, at 129-132). I understand that this analysis does not address the relevant question for this proceeding. Rather, I understand that to determine what portions of the issued patent (Ex1016) is prior art, the proper inquiry is whether a

POSITA reading such passages would understand that the passages relied upon by Dr. Beigi from Ex1016 were supported in the '550 Application (Ex1017). I understand if such material is not supported then it would not be considered prior art for purposes of this proceeding. Dr. Beigi does not appear to have performed the correct analysis. In my opinion, Dr. Beigi failure to provide the correct analysis is significant, as I discuss here, at least some of the key portions that Dr. Beigi relies upon, in my opinion, are not taught in the '550 Application, and thus would not constitute prior art for purposes of this IPR.

433. Most notably, the key passage from Krishnan (Ex1016, 2:7-11) which Dr. Beigi relies upon to support the alleged motivation to combine is absent from the provisional '550 Application. In particular, Dr. Beigi states that “Krishnan use[s] bots for the advantages that they offer: ‘greater convenience for users and lower costs for an organization (relative to having a live person interact with the user and handle the requests’” (Ex1003, ¶ 224, citing Ex1016, 2:7-11). However, the '550 Application contains no passage corresponding to Col 2, lines 7-11 of Krishnan, nor does Dr. Beigi assert that it is disclosed in the '550 Application. (*See, e.g.*, Ex1003, Table 2, at 129-132). Separately, as discussed below in paragraph 491, this alleged motivation to combine is based on an incomplete and commingled understanding of the belated teaching in Krishnan and Radhakrishnan.

434. As for what is supported by the provisional application, as Dr. Beigi notes, Krishnan generally discloses a visual chat bot builder which enables a chat bot to execute a selected dialog, including performing an action. (Ex1003, ¶ 218).

435. For example, as Dr. Beigi points out (Ex1003, ¶218), Krishan discloses that a “Travel Bot” may enable a conversation with a customer “110” to book a flight, as shown in the interface of Fig. 1:



(Ex1016, FIG. 1).

436. A POSITA as of November 5, 2017 would understand that the conversation depicted in Figure 1 of Ex1016 does not necessarily constitute a natural language interface, at least since the user is enabled to select a destination as a button, not as free text. Moreover, the figure does not show any free text field through which the user can provide free text information, indicating that the conversation is not a natural language interface.

437. Additionally, while the '550 Application generally provides support for the idea that this dialog can be used to “request additional information from the user” and “process[] the request to book the flight”, it does not, despite Dr. Beigi’s reliance (Ex1003, ¶ 221) on such disclosure, provide the specific examples of “dates of travel, seat preferences, and credit card information, and then processes the request to book the flight.” (*Compare* Ex1017, [0004] *with* Ex1016, 2:67-3:3).

438. Krishnan explains that the chatbot is used to provide “customer service” and teaches that the chatbot “serve[s] as an interface between the customer and one or more backend database, information, or other processing systems.” (Ex1016, 2:26-35; Ex1017, [0002]). In this passage, Krishnan is using the term “backend” (which does not include a GUI) to contrast with “frontend”. Further, in my opinion, a POSITA as of November 5, 2017 would understand the term “backend” to modify collectively to “databases, information, or other processing systems”, which are

associated with a chatbot, but not visible to a user of the chatbot. For example, in the context of the example given by FIG. 1, a POSITA as of November 5, 2017 would understand that the backend systems would enable the user to book a flight by, for example, changing values in databases relating to reservations and ticket availability, but would not display the operations associated with such changes to the user of the chatbot.

439. Moreover, in my opinion, a POSITA as of November 5, 2017 would also 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. Further, in my opinion, a POSITA as of November 5, 2017 would understand that since the chatbot of Krishnan has direct access to the backend databases, it would make no sense for Krishnan to access such systems through a user interface (as required in the patented claims at issue), as this would reduce the efficiency. Thus, given this direct integration with the backend, in my opinion, a POSITA as of November 5, 2017 would understand not only that 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, but it would in fact be undesirable as a more costly and less efficient means to update the database.

440. In short, Krishnan fails to teach an automation process that, when executed, uses a displayed user interface and simulates user interactions with the computer program. Accordingly, a POSITA as of November 5, 2017 would also understand that it also fails to teach defining that automation process and invoking that automation process via a natural language interface. Likewise, even if Krishnan is considered to teach defining a conversation generally, a POSITA as of November 5, 2017 would understand that Krishnan does not teach defining a conversation as understood by the claims of the '732 Patent – Krishnan does not teach obtaining values for that automation process, associating the conversation with that automation process, nor associating parameters from the conversation with that automation process.

2. Summary of Radhakrishnan

441. In further support of Ground 5 of the Petition, Dr. Beigi also identifies U.S. Patent No. 10,503,627, to Radhakrishnan et. al (“Radhakrishnan”, Ex1018), which is based on U.S. Application Serial No. 15/798,095 that was filed on Oct. 30, 2017, and issued on December 10, 2019.

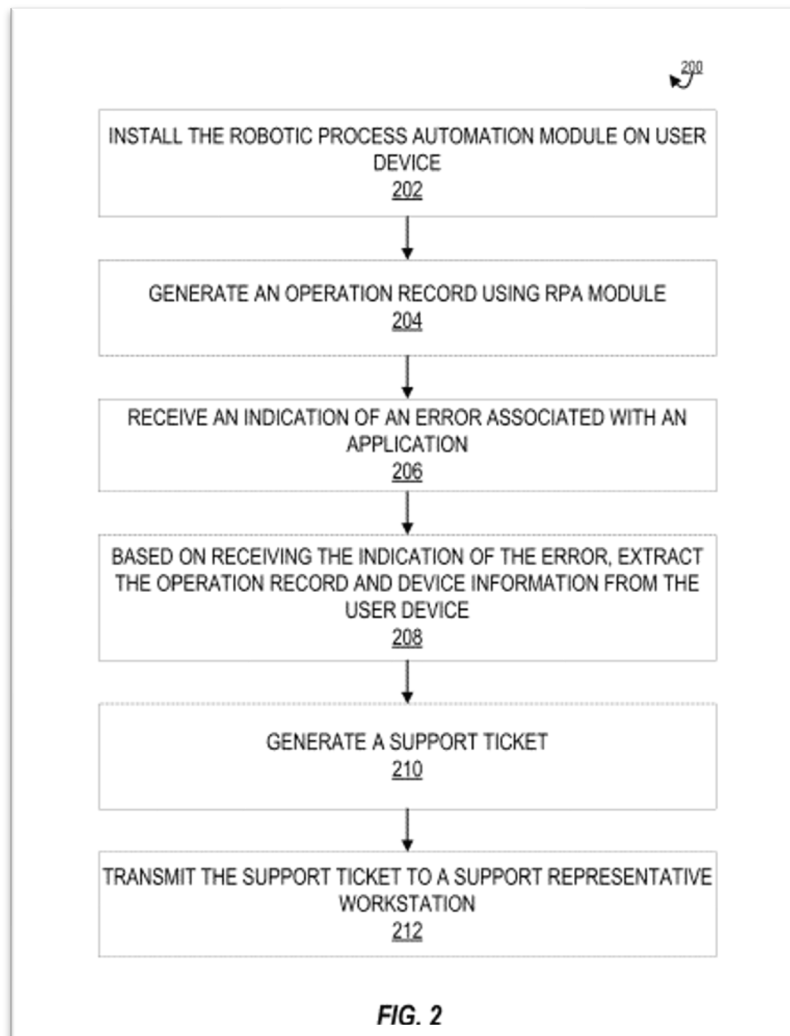
442. I understand that although Radhakrishnan was published after the priority date for the '732 Patent of November 5, 2017, since the application it is based on was filed prior to that date, for purposes of this proceeding, it is considered

prior art. I am not offering any opinions on the prior art status of Radhakrishnan, but assume for purposes of my analysis that it is prior art.

443. The abstract in Radhakrishnan, which Dr. Beigi relies upon, confirms that the invention is directed to “providing a robotic process automation” which “generate[s] an operation record for automatically generating and transmitting a diagnosis and correction request to a workstation.” (Ex1018, Abstract, cited and discussed in Ex1003, ¶219). As Dr. Beigi confirmed in his deposition, Radhakrishnan is “reporting” related to “error diagnosis and correction” (Ex2003, 267:24-268:5). Unlike the ’732 Patent, the robotic process disclosed in Radhakrishnan would not, in the context of a system for booking a hotel or flight, be used to book the hotel or flight, but rather monitor whether there are system errors in how the user interface interacts with a user, simulate the user interactions in a virtual environment and seek to diagnose and correct such errors based on the simulation. (Cf. Ex2003, 269:19-270:18). This is a very different process than the claimed invention, which requires “the automation process is configured to be invoked in response to a conversation of a user with a natural language interface,” and that such “automation process” is parameterized, and gathers such parameters from the user using the conversation. In my opinion, a POSITA as of November 5, 2017 would not understand that the “robotic process automation” disclosed and

discussed in Radhakrishnan is relevant to the claimed “automation process” in the ’732 Patent.

444. As shown in FIG. 2 of Radhakrishnan, relied upon by Dr. Beigi (Ex1003, p. 135), Radhakrishnan discloses using a robotic process automation (RPA) module to “generate an operation record” (step 204), which, after an “indication of an error associated with an application” is received (step 206), is “extract[ed] . . . from the user device” (step 208), and then used to “generate[] a support ticket” (step 210) which can be sent to a “support representative workstation” (step 212):



(FIG. 2 of Ex1018 (Described at Ex1018, 9:57-12:46)).

445. Dr. Beigi asserts that the RPA bot in Radhakrishnan disclosed “must be defined in order for it to operate as intended, to simulate user operations with the user device”. (EX1003, ¶233). I disagree. Dr. Beigi’s assertion is misleading and inaccurate. In my opinion, a POSITA as of November 5, 2017 would understand that the bot disclosed in Radhakrishnan, as illustrated, is focused on capturing user action

for error reporting, in contrast to performing automation processes using a user interface. As Radhakrishnan explains, “[i]n general, the RPA module detects one or more operations of the user within an application on the user device” and “may operate in the background of another application without interrupting the normal operating routine of the user within an application.” (Ex1018, 10:33-34, 10:43-46). In such an embodiment, a POSITA as of November 5, 2017 would have understood that the actions to be captured would include actions that are undefined and arbitrary (from the perspective of the RPA module) prior to capture by the RPA module. As Radhakrishnan explains, “[i]n one example, the RPA module is configured in real-time on the user device while monitoring the user input operations of the user on the user device.” (Ex1018, 10:4-6).

446. In other words, a POSITA as of November 5, 2017 would understand that Radhakrishnan is directed towards capturing user input and execution of process for purposes of reporting an error, and not for the purposes of later performing them in response to a user command or conversation.

447. In this vein, while Radhakrishnan discloses that, “[i]n some embodiments, the RPA module interacts directly with a presentation layer of the application within a virtual environment”, (Ex1018, 11:41-43), Radhakrishnan does not disclose using a displayed user interface to perform a captured automation

process, only to generate an operation record. The “operation record” is simply a “list of executed commands or input data detected by the RPA module such as in a text file, .csv file, or the like” (Ex1018, 11:6-9), which is then “extracted” and used to “generate[] a support ticket”, not to perform the automation process. (Ex1018, 12:24-46).

448. In accordance with the above, I note that Dr. Beigi fails to show that Radhakrishnan teaches the defining an automation process to be executed on displayed user interface by simulating user interactions, as claimed by the '732 Patent. Likewise, Dr. Beigi does not show that Radhakrishnan teaches an automation process would be parameterized. More specifically, Radhakrishnan fails to teach that the automation process is a parameterized automation process depending on the one or more parameters that are obtained from a user during the conversation. And, of course, Radhakrishnan discloses nothing regarding a conversation, including defining a conversation, associating a conversation with an automation process, publishing a conversation, or using a natural language interface to invoke a parameterized automation process. Indeed, the main objective of Radhakrishnan is configuring the RPA module to not be invoked in response to particular user commands or conversations, but instead to always be active in the background, in order to capture errors in user-driven processes as they occur, without needing to be

invoked first. In my opinion, a POSITA as of November 5, 2017 would understand that the Radhakrishnan RPA module appears to be a version of what is known as an event monitoring tool. These tools continuously monitor (without user commands or conversations) automation processes in one or more computer systems. These logs generally log processes, transactions and errors, and generate notifications when errors or unexpected conditions arise in the automation processes. They do not perform any automation processes themselves.

449. In short, Radhakrishnan only teaches defining an automation process for use in error detection, not for invocation by a conversation using parameters that are collected as part of the conversation.

3. Krishnan and Radhakrishnan do not disclose or render obvious Claims 1, 11 or 18 (and by extension their dependent claims)

450. Dr. Beigi asserts Krishnan (Ex1016) and Radhakrishnan (Ex1018), render obvious Claims 1, 11, and 18 of the '732 Patent. (Ex1003, ¶¶220-237, 255-261, 266- I disagree.

451. In particular, Dr. Beigi offers Krishnan for its disclosure relating to using a “chatbot to ‘provide customer service to users’” and is using Radhakrishnan for its disclosure related to using an “RPA bot that helps diagnose computer software-related errors . . .” (Ex1003, ¶ 224). As Dr. Beigi explains, “The chatbot

would collect information from the conversation with the user. The collected information would be provided to the RPA bot. The RPA bot would then execute the automation process (as defined).” (Ex1003, ¶228). In short, Dr. Beigi appears to suggest combining the chatbot of Krishnan with the RPA module disclosed by Radhakrishnan.

452. First, in my opinion, a POSITA as of November 5, 2017, would have understood that Radhakrishnan relates to a different field of endeavor than the ’732 Patent and is not reasonably pertinent to problems addressed in the ’732 Patent. As such, in my opinion, a POSITA as of November 5, 2017 would not conclude that Radhakrishnan is analogous art, and thus, a POSITA would have no reason to look at Radhakrishnan. (*See* pars. 456-466, *infra*.)

453. Second, the proposed obviousness combination fails to disclose the elements of the ’732 Patent. In my opinion, a POSITA as of November 5, 2017 would understand that at best a combination of Krishnan’s “customer service request” with Radhakrishnan’s teachings about “RPA bot[s]” as Dr. Beigi proposes (Ex1003, ¶ 226) would merely have the same conversation as implemented in Krishnan (Fig. 3) being monitored by the RPA module of Radhakrishnan to determine if there are system errors, with user activity being simulated in parallel in a virtual environment by an RPA module. As discussed herein, even if Radhakrishnan were considered

analogous art for purposes of the '732 Patent (which it is not, as I discuss in *ars.* 456-466, *infra*), the combination would not teach or suggest the elements of Claims 1, 11 and 18, including defining an automation process using a displayed user interface to be invoked by a natural language interface, defining a conversation with defined parameters to be used in an automation process using a displayed user interface, associating the defined conversation with that defined automation process, or publishing that conversation. (*See* pars. 467-503, *infra*).

454. In my opinion, at best such a combination would merely have the same conversation as implemented in Krishnan being monitored by the RPA module of Radhakrishnan to determine if there are system errors, with user activity being simulated in parallel by an RPA module. As discussed herein, the combination would not fill the large gaps in Krishnan's disclosure, putting aside the non analogous nature of Radhakrishnan to the problems being addressed by the '732 Patent.

455. Finally, Dr. Beigi has not established a proper motivation to combine Krishnan and Radhakrishnan in relevant manner. His proposed motivations make no sense. (*See* pars. 489-493, *infra*).

a. Radhakrishnan is Non-Analogous Art with Respect to the Claimed Invention

456. I understand that, in order for a reference to be considered in an obviousness inquiry, the reference (here, Radhakrishnan, Ex1018), must be analogous art to the claimed invention. In particular, Dr. Beigi needs to establish that Radhakrishnan (Ex1018) must either be from the same field of endeavor as the claimed invention of the '732 Patent, or reasonably pertinent to the problem faced by the invention of the '732 Patent.

457. In my opinion, a POSITA as of November 5, 2017 would have understood the claimed invention and Radhakrishnan to be in different fields, and would have understood that the problem to be solved by Radhakrishnan was very different from the problem to be solved by the claimed invention. Since neither is the case here, in my opinion, a POSITA as of November 5, 2018 would not have considered Radhakrishnan (Ex1018) analogous art to the claimed invention of the '732 Patent.

i. Radhakrishnan is directed to a different field of endeavor than the '732 Patent

458. In the first place, in my opinion, a POSITA as of November 5, 2017 would understand that the claimed invention in the '732 Patent is directed to the method of defining a conversation used to invoke an automation process as illustrated, for example, by the method shown in FIG. 3, as the Board recognizes.

(Paper 10, at 3 (“The ‘732 Patent discloses exemplary embodiments for a non-programmer user to define a flow of conversation for a chat bot.”)).

459. Radhakrishnan is in a different field than the claimed invention in the ‘732 Patent. Rather than provide ways of defining a conversation, as Dr. Beigi recognizes (Ex1003, ¶ 219), Radhakrishnan is “directed to providing a robotic process automation enabled **file diagnosis and correction.**” (Ex1018, Abstract; *see also* Ex1018, 6:50-61 (providing an “automation error diagnosis and correction system and environment” (FIG. 1) and flows “for automation error diagnoses and correction” (FIGs. 2 and 3)). Indeed, Radhakrishnan sought to overcome problems specifically relating to diagnosis of system problems, not defining a conversation to gather information to implement an automation process:

With an increasing dependence on technology, computer systems are relied upon to complete various tasks and increase user and/or process efficiency. However, difficulties such as program crashes, file corruption, and operating errors can present themselves and interrupt typical operation of a system or device. Further these errors can be extremely technical in nature requiring expert knowledge or specialized tools outside the realm of a typical user in order to repair. Due to the complex nature of computer system and device errors and the level of technical detail required for proper correction, a tool for efficient diagnosis and rectification of said errors is required.

(Ex1018, 1:7-18).

460. Accordingly, in my opinion, a POSITA as of November 5, 2017 would understand that Radhakrishnan and the '732 Patent are not in the same field of endeavor.

**ii. Radhakrishnan is not reasonably
pertinent to the problems faced by the inventors
of the '732 Patent claims**

461. Nor is Radhakrishnan reasonably pertinent to the problems faced by the inventors of the '732 Patent claims.

462. As taught by the '732 Patent, its claims are meant to address difficulties relating to improving the process of creating chatbots and automation processes, including in the context of “[i]ntegration of a new system into an organization” and training usage on such systems (Ex1001, 5:38-41), “defining automation processes” to be robust (*Id.*, 5:49-52), and, importantly, in “defining the chat bots without the need of using dedicated APIs, programming languages, or the like.” (*Id.*, 5:29-33).

463. There is no discussion in '732 Patent about using the claimed technology to diagnose system problems that occur during operation by a user.

464. Radhakrishnan does not provide disclosure which is pertinent to the problems sought to be addressed by the patented claims, which all revolve around making defining chatbots and automation processes more user-accessible. Instead, as discussed, Radhakrishnan is focused on providing “a tool for efficient diagnosis

and rectification” of computer errors. (Ex1018, 1:17-18). Indeed, Radhakrishnan does not implement a parameterized automation process according to information provided from a user. As Dr. Beigi replied when asked if Radhakrishnan addresses the “technical problem dealt with by the disclosed subject matter is to provided for a user friendly manner of defining functionality of chatbots”, “Radhakrishnan doesn’t handle chatbots”. (Ex2003, 273:1-22). Dr. Beigi also agreed that “Radhakrishnan does not address automation processes that would be invoked by a chatbot” (Ex2003, 278:15-24). Accordingly, in my opinion, a POSITA as of November 5, 2017 would understand that the techniques disclosed by Radhakrishnan are not pertinent to the problems sought to be tackled in the ’732 Patent.

465. Finally, I note that while Dr. Beigi relies on Radhakrishnan to assert that the claims of the ’732 Patent are obvious, he provides no analysis to suggest that Radhakrishnan is analogous art to the ’732 Patent or any other reasoning to support the idea that a POSITA as of November 5, 2017 would have considered Radhakrishnan in addressing the problems addressed by the ’732 Patent.

466. Accordingly, in my opinion, because Radhakrishnan is in a distinct field from the ’732 Patent, and is not reasonably pertinent to the problems attempted to be solved by the ’732 Patent, it is non-analogous art to the ’732 Patent. Dr. Beigi’s

obviousness analysis which relies on Krishnan in combination with Radhakrishnan accordingly fails for this reason.

b. Neither Krishnan nor Radhakrishnan, either Alone or in Combination, Disclose or Render Obvious Using a Displayed User Interface of a Computer Program to Simulate a Sequence of Interactions and Execute a Functionality of the Computer Program

467. A review of Dr. Beigi's analysis of the independent claims reflects that he was not able to identify any teachings in either Krishnan nor Radhakrishnan that teach an "automation process which is configured to utilize a displayed user interface to simulate [a] sequence of interactions with the displayed user interface of the computer program and executed a functionality of the computer program." Accordingly, as I discuss below, this means that Dr. Beigi's combination fails to teach the elements of the claims.

i. PREAMBLE [1-PRE], [11-PRE] and [18-PRE]: Neither Krishnan nor Radhakrishnan disclose "defining an automation process, ..."

468. Each of the Preambles of the independent claims provide the respective method (claim 1), computerized apparatus (Claim 11) and non-transitory computer readable medium (claim 18), are "for defining an automation process", which "is configured to be invoked in response to a conversation of a user with a natural language interface". (Claim 1, 22:15-18; Claim 11, 23:23-26; Claim 18, 24:23-26).

469. In my opinion, a POSITA as of November 5, 2017 would understand that neither Krishnan nor Radhakrishnan teach a user “defining an automation process” as that term is used in the context of Claims 1, 11 and 18 of the ’732 Patent, nor in the context of its description.

470. Dr. Beigi asserts that Krishnan teaches a “conversation with a user with a natural language interface for Krishnan’s flight booking task (automation process)”, as if Krishnan taught using the conversation to invoke an automation process. (Ex1003, ¶ 221). But the “flight booking task” is not an automation in Krishnan in the same sense as the “automation process” is in the ’732 Patent claims. Rather, in my opinion, a POSITA as of November 5, 2017 would understand Krishnan implements the flight booking task, as well as the other tasks it calls out, in the same way that it obtains information—by directly accessing “one or more backend databases or other information processing systems” and updating such “backend databases and other information processing systems.” (Ex1016, 2:33-35). This is a mere script execution and does not disclose invoking an “automation process” that uses a displayed user interface to simulate user activity and execute computer program functionality. It simply discloses another way of gathering information from a user to carry out system functionality (flight booking). Similarly, while Dr. Beigi asserts that Krishnan discloses “a conversation” within the preamble,

because the chats disclosed by Krishnan do not invoke the correct form “automation process”, they do not read on the “conversation” element either.

471. Nor does Radhakrishnan cure this deficiency. While, as Dr. Beigi points out, Radhakrishnan discusses “simulat[ing] user operations with the user device” (Ex1003, ¶ 222), it does so in order to “generate an operation record for automatically generating and transmitting a diagnosis” (Ex1018, Abstract), not in order to perform an automation process again. Accordingly, as I also discuss above (*see* par. 445, *supra*), Radhakrishnan does not disclose “defining an automation process” at all, but merely generating a record of user activity.

472. Radhakrishnan also does not disclose using a conversation at all.

473. Since neither Krishnan nor Radhakrishnan teach “defining” the claimed “automation process”, nor a conversation to invoke the claimed “automation process” in my opinion, a POSITA as of November 5, 2017 would understand that Krishnan and Radhakrishnan do not disclose or render obvious, alone or in combination, the preamble of the ’732 Patent.

i. 1[a], 11[a], 18[a] Neither Krishnan nor Radhakrishnan disclose nor render obvious “wherein the conversation is configured to obtain from the user one or more values to one or more parameters associated with the automation process”

474. Claim elements 1[a], 11[a] and 18[a] provide, “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.” (Ex1001, 22:19-23; 23:29-33; 24:30-34). As I discuss below, neither Krishnan nor Radhakrishnan teach a conversation which is “configured to obtain from the user one or more values to one or more parameters associated with the automation process.”

475. Dr. Beigi asserts that this element is met because, pointing to disclosure that “the chat bot may respond to customer input by retrieving and providing the requested information, requesting additional input or information from user, or performing an action and providing the user with status updates about the progress of the action.” (Ex1003, ¶ 229, citing Ex1016, 2:40-44).³ Dr. Beigi relies on this to assert that “the conversation between the chatbot would obtain values (as taught by

³ Dr. Beigi also cites to a specific example, at Ex1016, 2:67-3:3, but I note this is not present in the ’550 Application and therefore is not prior art. *See* Ex1015.

Krishnan) used in the automation process (as taught by Krishnan and Radhakrishnan).” (Ex1003, ¶ 231).

476. However, as discussed above (*see* pars. 468-473) both Krishnan and Radhakrishnan fail to teach an automation process as claimed by the ’732 Patent.

477. Accordingly, in my opinion, a POSITA as of November 5, 2017 would understand that neither Krishnan nor Radhakrishnan disclose, either expressly or inherently, nor render obvious, elements 1[a], 11[a] or 18[a] of the ’732 Patent.

ii. 1[b], 11[b], 18[b] Neither Krishnan nor Radhakrishnan disclose or render obvious “associating the conversation with the automation process”

478. Element [b] of claims 1, 11 and 18 provides “associating the conversation with the automation process.” (Ex1001, 22:24; 23:34; 24: 35).

479. Dr. Beigi provides limited analysis as to this element, merely asserting that “[s]ince the collected information is used in the automation process, the conversation is associated with the automation process.” (Ex1003, ¶ 232). I disagree. As discussed above (*see* pars. 468-473) both Krishnan and Radhakrishnan fail to teach an automation process as claimed by the ’732 Patent. It follows that the combination therefore cannot include “associating the conversation with the automation process”. Additionally, since neither Krishnan nor Radhakrishnan relate to multiple automation processes that can be associated with a conversation, the

associating step would serve no purpose in this context. Nor would the automation process in Radhakrishnan, which is generated while the user performs the automation process, exist at the time the conversation is invoked, and thus, would not be defined or associated.

480. Accordingly, in my opinion, a POSITA as of November 5, 2017 would understand that neither Krishnan nor Radhakrishnan disclose, either expressly or inherently, nor render obvious, elements 1[a], 11[a] or 18[a] of the '732 Patent.

iii. 1[c], 11[c], 18[c] Neither Krishnan nor Radhakrishnan disclose or render obvious “the automation process 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”

481. Element 1[c], 11[c], and 18[c] require that the defined 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.” (Ex1001, 22:25-29; 23:35-39; 24:36-40).

482. Dr. Beigi does not assert that Krishnan discloses this element, instead relying on Radhakrishnan. (Ex1003, ¶¶ 233-234). In my opinion, however, a POSITA as of November 5, 2017 would understand that Radhakrishnan does not

teach using an automation process which is “configured 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”.

483. The aspects of Radhakrishnan that Dr. Beigi cites do not disclose this claim element. Instead, as Dr. Beigi notes, Radhakrishnan uses RPA bot technology to “simulate[] user operations so that it may help diagnose computer software-related errors, such as ‘program crashes, file corruption, and operating errors...’” (Ex1003, ¶ 233, citing Ex1018, 1:8-12). While Dr. Beigi states that Radhakrishnan discloses doing so by “reproducing them [errors]” (Ex1003, ¶ 233), Radhakrishnan explains that it does so in a virtual environment, in parallel with the actual process being executed by a user. (Ex1018, 11:29-47). Dr. Beigi does not point to any instances of actual execution of an automation process in his analysis, and Radhakrishnan describes that the automation processes are “back-up simulated operations” which can be provided as part of a “support ticket.” (Ex1018, 12:21-38). Similarly, while Dr. Beigi states that “one common functionality of a computer program is drafting and sending an email message”, and this is a process would be an “RPA implemented task” Dr. Beigi does not provide any support from Radhakrishnan for this assertion nor explain how this discloses element [c]. (Ex1003, ¶¶ 233, 234).

484. Accordingly, in my opinion, a POSITA as of November 5, 2017 would understand that neither Krishnan nor Radhakrishnan disclose, either expressly or inherently, or render obvious, element 1[c], 11[c] or 18[c] of the '732 Patent.

iv. 1[e], 11[e], 18[e] Neither Krishnan nor Radhakrishnan disclose or render obvious “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”

485. Element [e] of claims 1, 11 and 18 provides that “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.” (Ex1001, 22:35-39; 23:45-49; 24:46-50).

486. Dr. Beigi asserts this element is met, arguing, by reference to his other arguments, that “Krishnan discloses a natural interface” and “both Krishnan and Radhakrishnan disclose an automation process”. (Ex1003, ¶ 237). Accordingly, the chatbot would “automatically invoke the RPA bot’s automation process (parameterized automation process)”. (Ex1003, ¶ 237).

487. Here again, Dr. Beigi’s proposed combination fails. Krishnan, as discussed, does not disclose invoking an automation process that executes a functionality of a displayed user interface by simulating user inputs; it teaches the use of “backend” systems. (Ex1016, 2:27-35; Ex1017, [0002]). Likewise,

Radhakrishnan discloses “automation error diagnosis and correction system and environment” (Ex1018, 6:50-51) and “providing a robotic process automation enabled file diagnosis and correction” (*Id.*, Abstract), not performing a functionality of a computer program to be invoked by a conversation.

488. Accordingly, in my opinion, a POSITA as of November 5, 2017 would understand that neither Krishnan nor Radhakrishnan disclose, either expressly or inherently, or render obvious, element 1[e], 11[e] or 18[e] of the '732 Patent.

c. A POSITA Would Have Had No Motivation to Combine Krishnan and Radhakrishnan

489. In my opinion, a POSITA as of November 5, 2017 would not have had a motivation or other reason to combine Krishnan and Radhakrishnan in the manner suggested by Dr. Beigi.

490. As evidence of the motivation to combine, Dr. Beigi asserts that “[a] POSITA would be motivated to have the RPA bot be configured to be invoked in response to a conversation by the chatbot because doing so would lead to better convenience (less human intervention), lower costs, and better efficiencies.” (Ex1003, ¶228). As support, Dr. Beigi alleges that :

“Both Krishnan and Radhakrishnan use bots for the advantages that they offer: ‘greater convenience for users and lower costs for an organization (relative to having a live person interact with the user and handle the requests’ [Ex1016, 2:7-11] and ‘reduce[d] [] amount of

computing resources required to execute tasks when compared with executing the same tasks using a traditional application programming interface (API).’ (... EX1018, 6:21-34.)”

(Ex1003, ¶224).

491. Dr. Beigi’s citation to Krishnan, however, is unsupported by the ’550 Application, which does not include the cited disclosure. And Dr. Beigi’s reference to reducing “computing resources” in Radhakrishnan is in the context of the “invention” disclosed therein, *i.e.*, error detection, where a universal, non-application specific RPA bot has advantages over types of automation which would otherwise require integration. (*See, e.g.*, Ex1018, 6:20-38). In my opinion, a POSITA as of November 5, 2017 would understand that a reduction in computing resources is not a normal advantage of RPA bots in other contexts, such as automating processes in backend systems, which are typically more resource-intensive than API calls. Accordingly, in my opinion, a POSITA as of November 5, 2017 would not have been motivated to modify Krishnan with Radhakrishnan based on the reasons provided by Dr. Beigi.

492. Moreover, in my opinion, a POSITA as of November 5, 2017 would have no reason to combine Krishnan with Radhakrishnan. Krishnan’s system of interacting directly with “one or more backend databases or other information processing systems” already worked (Ex1016, 2:34-35), and a POSITA as of

November 5, 2017 would understand that it would ordinarily be able to retrieve, and edit values from, those databases using database calls. In such a system, a POSITA as of November 5, 2017 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. There would be few challenges associated with this approach - obtaining permissions poses no issues in Krishnan (unlike some embodiments of the claimed invention), since the chatbot has direct access to the backend systems which it seeks to perform an automation action upon.

493. By a similar token, to the extent a POSITA as of November 5, 2017 would have been motivated to combine Radhakrishnan with Krishnan, it would not, as discussed above, result in a combination which uses a simulation on a displayed user interface to perform automation processes. Radhakrishnan discloses how to improve error collection using RPA bots, and does not provide a motivation to cause execution of an automation process using a displayed user interface of a computer program. (Ex1018, 6:50-51). A POSITA as of November 5, 2017 would not have been motivated to make a combination resulting in the elements of the claimed invention.

**4. Krishnan and Radhakrishnan Do Not Render
Obvious the Challenged Dependent Claims**

a. Claim 9 – Neither Krishnan nor Radhakrishnan discloses or renders obvious “the automation process is configured to execute a new functionality of the computer program, wherein the new functionality is defined based on the values to the one or more parameters, without relying on a dedicated Application Programming Interface.”

494. Claim 9 provides: “[a] The method of claim 1, wherein the automation process is configured to execute a new functionality of the computer program, wherein the new functionality is defined based on the values to the one or more parameters, [b] without relying on a dedicated Application Programming Interface.” (Ex1001, 23:14-19).

495. At the outset, I note that Claim 9 is dependent on Claim 1 and thus, to the extent that Krishnan and Radhakrishnan fail to disclose or render obvious Claim 1, these references likewise fails to do so for Claim 9. Moreover, despite Dr. Beigi’s assertions, these references do not teach the additional elements of Claim 9.

496. Dr. Beigi asserts that “[i]n the Krishnan-Radhakrishnan combination, the automation process and RPA bots are configured to execute defined jobs or tasks. The automation process and RPA bots may additionally or alternatively be configured for further training or completing tasks.” (Ex1003, ¶ 249). As support, Dr. Beigi points to Radhakrishnan’s overview of RPA bots generally, which explains

that some RPA bots can “captur[e] and record[] a sequence of user actions for further training or completing tasks.” (Ex1003, ¶ 248, citing Ex1018, 6:6-8). Of course, Dr. Beigi’s analysis ignores that Radhakrishnan explains that this is “valuable for error analysis and correction as well as regulatory compliance”. (Ex1018, 6:8-10). As discussed, the RPA bot technology used by Radhakrishnan does not perform any tasks at all, but instead is used to “enable file diagnosis and correction” by creating “an operation record for automatically generating and transmitting a diagnosis and correction request to a workstation.” (Ex1018, Abstract. (*Id.*, Abstract). Accordingly, as discussed, not only would a POSITA as of November 5, 2017 not have been motivated to combine Krishnan with Radhakrishnan (*see* pars. 489-493, *supra*), but such a combination would not have resulted in the claimed element of claim 9.

497. Accordingly, in my opinion, a POSITA as of November 5, 2017 would understand that Krishnan and Radhakrishnan, alone or in combination, do not disclose or render obvious Claim 9 of the ’732 Patent.

b. Claim 10 - Neither Krishnan nor Radhakrishnan disclose or render obvious “the functionality of the computer program comprises inputting data to a field in the displayed user interface.”

498. Claim 10 provides: “The method of claim 1, wherein the functionality of the computer program comprises inputting data to a field in the displayed user

interface.” (Ex1001, 23:20-22). In other words, Claim 10 thus requires that executing the automation process using the displayed user interface of the computer program in Claim 1 includes inputting data to a field of the displayed user interface.

499. Dr. Beigi provides as an obvious combination that “[t]he Krishnan and Radhakrishnan combination would obtain values from the user using the chatbot (natural language interface), as taught by Krishnan, and inputting data to a field in the displayed UI, as taught by Radhakrishnan.” (Ex1003, ¶ 254). This fails for several reasons.

500. First, because Claim 10 is dependent on Claim 1, to the extent that Krishnan and Radhakrishnan fail to disclose or render obvious Claim 1, these references likewise fails to do so for Claim 10. Similarly, Dr. Beigi provides no independent analysis to suggest a POSITA as of November 5, 2017 would have been motivated to combine Radhakrishnan or Krishnan, and I maintain my opinion that a POSITA would not have been motivated to do so.

501. Second, Dr. Beigi fails to demonstrate that Radhakrishnan teaches inputting data to a field as part of an automation process. As support for the combination offered for by Radhakrishnan, Dr. Beigi points to Radhakrishnan’s disclosure that the RPA module may be “trained to mimic user activity directly with a UI”, that the user can “select[] options (e.g., a check box, drop-down menu),

completing a field”, and that “RPA module may act as a mirror of the actual user” (Ex1003, ¶ 253, citing Ex1018, 5:49-50, 7:14-15, 11:17-19, 11:29-36). Dr. Beigi goes on to explain:

The RPA bot mirrors the user’s operations of completing a field on a GUI. In order for the user to complete a field on the GUI, the GUI must comprise one or more input fields, **and hence, the displayed GUI that the RPA bot inputs data to must also comprise the one or more input fields.** Hence, Radhakrishnan discloses claim 10 (“the functionality of the computer program comprises inputting data to a field in the displayed user interface”).

Ex1003, ¶ 254 (emphasis added)

502. This explanation is severely flawed. The invention disclosed in Radhakrishnan does not include a “displayed GUI that the RPA bot inputs data to” as Dr. Beigi asserts. Instead, Radhakrishnan explains that the “RPA module may act as a mirror of the actual user operations **and be used as an accurate, complete operation record** which details the user operations in their entirety.” (Ex1018, 11:32-36). Dr. Beigi’s citation and analysis omits how “mirroring” is actually used by the RPA module disclosed in Radhakrishnan. Once an operation record is obtained, contra Dr. Beigi, it is not used to execute the functionality of the automation process, as Claim 10 requires. Instead, “the system extracts the operation

record and device information from the user device” (Ex1018, 12:24-26), “generates a support ticket [which may comprise the operation record] and ... transmits the support ticket to a support representative workstation” (Ex1018, 12:37-43).

503. Accordingly, in my opinion, a POSITA as of November 5, 2017 would understand that Krishnan and Radhakrishnan, alone or in combination, do not disclose or render obvious Claim 10 of the '732 Patent.

c. Dependents Claims 2-5 and 9-10 (for Claim 1), Claims 12-15 (for Claim 11) and Claims 19-20 (for Claim 18) are Also Not Obvious For At Least The Same Reason as Claims 1, 11 and 18

504. I understand that to the extent a claim is found not to be anticipated or rendered obvious by a particular reference or combination of reference, then claims which depend from such claim would also not be anticipated or rendered obvious.

505. With respect to each of the dependent claims in Ground 5, to the extent that Krishnan and Radhakrishnan render obvious Claims 1, 19 and 29, then by definition it also does not anticipate nor render obvious their dependent claims, i.e., Claims 2-5 and 9-10 (for Claim 1), Claims 12-15 (for Claim 11) and Claims 19-20 (for Claim 18).

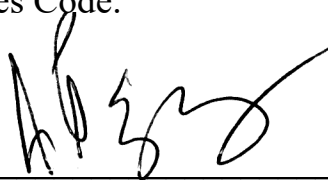
VIII. Conclusion

506. For the foregoing reasons, it is my opinion that each of the challenged claims (Claims 1-6, 9-16, and 18-21) of the '732 Patent are not invalid in view of

any of the grounds set forth in the Petition, and the support declaration of Dr. Beigi.
(Ex1003).

I hereby declare that all statements made herein are of my own knowledge and true, and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both under Section 1001 of Title 18 of the United States Code.

Dated: July 8, 2024

By: 
Ivan Zatkovich

APPENDIX A
(Listing of Claims of U.S. Patent No. 11,258,732 (Ex1001) at Issue In IPR2023-01379)

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.

2. The method of claim 1, wherein said defining comprises determining a conversation flow, wherein the conversation flow defines an order between conversation elements, wherein the conversation elements comprise at least a question element and an action element, wherein the action element is associated with automation process.
3. The method of claim 2, wherein the conversation elements comprise at least one of: a message element and a condition element.
4. The method of claim 2, wherein the conversation elements comprise a second action element associated with a second automation process, whereby the natural language interface is configured to selectively invoke either the automation process or the second automation process based on interaction with the user.
5. [a] The method of claim 1, wherein the natural language interface is associated with a plurality of conversations, [b] wherein the plurality of conversations comprise the conversation; wherein each of the plurality of conversations is associated with one or more terms, [c] wherein the natural language interface is configured to select a conversation from the plurality of conversations based on a user intent matching the one or more terms, [d] wherein the user intent is determined based on interaction of the user with the natural language interface.

6. The method of claim 1, 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.

7. **[Not Challenged]** The method of claim 6, wherein the link comprises a conversation identifier of a conversation between the user and the natural language interface, wherein the one or more values are configured to be stored in a database by the natural language interface and retrieved, using the conversation identifier, by a client device executing the automation process.

8. **[Not Challenged]** The method of claim 6, wherein the link comprises the one or more values, thereby providing the one or more values to the automation process.

9. **[a]** The method of claim 1, wherein the automation process is configured to execute a new functionality of the computer program, wherein the new functionality is defined based on the values to the one or more parameters, **[b]** without relying on a dedicated Application Programming Interface (API) of the computer program.

10. The method of claim 1, wherein the functionality of the computer program comprises inputting data to a field in the displayed user interface.

11. 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 a processor and coupled memory, the processor being adapted to perform:

- [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.

12. The computerized apparatus of claim 11, wherein said defining comprises determining a conversation flow, wherein the conversation flow defines an order between conversation elements, wherein the conversation elements comprise at least a question element and an action element, wherein the action element is associated with automation process.

13. The computerized apparatus of claim 12, wherein the conversation elements comprise at least one of: a message element and a condition element.

14. The computerized apparatus of claim 12, wherein the conversation elements comprise a second action element associated with a second automation process, whereby the natural language interface is configured to selectively invoke either the automation process or the second automation process based on interaction with the user.

15. The computerized apparatus of claim 11, wherein the natural language interface is associated with a plurality of conversations, wherein the plurality of conversations comprise the conversation; wherein each of the plurality of conversations is associated with one or more terms, wherein the natural language interface is configured to

select a conversation from the plurality of conversations based on a user intent matching the one or more terms, wherein the user intent is determined based on interaction of the user with the natural language interface.

16. The computerized apparatus of claim 11, 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.

17. **[Not Challenged]** The computerized apparatus of claim 16, wherein the link comprises a conversation identifier of a conversation between the user and the natural language interface, wherein the one or more values are configured to be stored in a database by the natural language interface and retrieved, using the conversation identifier, by a client device executing the automation process.

18. 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 a 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:

- [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.

19. The non-transitory computer readable medium of claim 18, wherein said defining comprises determining a conversation flow, wherein the conversation flow defines an order between conversation elements, wherein the conversation elements comprise at least a question element

and an action element, wherein the action element is associated with automation process.

20. The non-transitory computer readable medium of claim 18, wherein the natural language interface is associated with a plurality of conversations, wherein the plurality of conversations comprise the conversation; wherein each of the plurality of conversations is associated with one or more terms, wherein the natural language interface is configured to select a conversation from the plurality of conversations based on a user intent matching the one or more terms, wherein the user intent is determined based on interaction of the user with the natural language interface.

21. The non-transitory computer readable medium of claim 18, 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.