

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NUANCE COMMUNICATIONS, INC.,
Petitioner,

v.

MMODAL SERVICES LTD.,
Patent Owner.

IPR2019-00499
Patent 8,781,829 B2

Before JOHN A. HUDALLA, STACY B. MARGOLIES, and
STEVEN M. AMUNDSON, *Administrative Patent Judges*.

AMUNDSON, *Administrative Patent Judge*.

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

I. INTRODUCTION

Nuance Communications, Inc., (“Petitioner”) filed a Petition (Paper 2, “Pet.”) requesting an *inter partes* review of claims 1, 4, 6, 12, 13, 18, 21, 25, and 26 of U.S. Patent No. 8,781,829 B2 (Ex. 1001, “the ’829 patent”) under 35 U.S.C. §§ 311–319. MModal Services Ltd. (“Patent Owner”) did not file a Preliminary Response.

In our Institution Decision (Paper 7, “Inst. Dec.”), we instituted review based on all challenged claims and all grounds advanced in the Petition. We have jurisdiction under 35 U.S.C. § 6. We issue this Final Written Decision under 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons explained below, Petitioner has shown by a preponderance of the evidence that claims 1, 4, 6, 12, 13, 18, 21, 25, and 26 of the ’829 patent are unpatentable. *See* 35 U.S.C. § 316(e) (2012).

II. BACKGROUND

A. *Procedural History*

After we instituted review, Patent Owner filed a Response (Paper 23, “Resp.”), Petitioner filed a Reply (Paper 26, “Reply”), and Patent Owner filed a Sur-reply (Paper 29, “Sur-reply”). On April 20, 2020, we held an oral hearing, and the record includes a transcript of the hearing. *See* Paper 35 (“Tr.”).

B. *Real Parties in Interest*

Petitioner identifies itself as the real party in interest. Pet. 1. Patent Owner identifies the following real parties in interest: MModal Services Ltd., MModal LLC, 3M Health Information Systems, Inc., Multimodal Technologies, LLC, 3M Innovative Properties Company, and 3M Company. Paper 34, 1. The parties do not raise any issue about real parties in interest.

C. Related Matters

Petitioner and Patent Owner identify the following civil action where Patent Owner has asserted the '829 patent against Petitioner: *MModal Services Ltd. v. Nuance Communications, Inc.*, No. 1:18-cv-00901-WMR (N.D. Ga. filed Feb. 28, 2018). Pet. 1; Paper 4, 1.

Patent Owner identifies another petition challenging the patentability of claims of another patent asserted by Patent Owner against Petitioner in the above-identified civil action, i.e., IPR2019-00496 (U.S. Patent No. 8,412,524 B2). Paper 4, 1. Patent Owner also identifies a pending application related to the '829 patent. *Id.*

D. The '829 Patent (Ex. 1001)

The '829 patent explains that a “variety of automatic speech recognition (ASR) systems exist for recognizing speech and for generating text and/or commands based on such speech.” Ex. 1001, 1:16–18. The patent identifies two broad system categories: systems with freeform-input modalities and systems with structured-input modalities. *See id.* at 1:38–3:4.

Systems with freeform-input modalities “allow users to dictate freeform text that is entered directly into documents exactly as spoken, except possibly with spelling corrections or other minor corrections applied.” Ex. 1001, 1:21–24. Those systems commonly work “in conjunction with word processors to dictate memos, articles, and other prose documents.” *Id.* at 1:24–27.

Systems with structured-input modalities “generate and input data in a structured format based on the user’s speech.” Ex. 1001, 1:27–29. Those systems “may be used to enter data into a database form, in which data in

each field is constrained to have only certain values and to be represented in certain formats.” *Id.* at 1:29–32.

The ’829 patent discusses various advantages and disadvantages of systems in each category. *See id.* at 1:38–3:4, 3:57–4:32. In particular, the patent explains that systems with structured-input modalities (1) process data “in the form of discrete data elements that computers can act on easily and automatically,” (2) “enable data to be input in a form such that” computers can discern meaning unambiguously “without the need for further interpretation,” and (3) “reduce the frequency of errors in the form of omissions of relevant and/or required data.” *Id.* at 1:49–51, 1:62–65, 4:29–32. To illustrate those advantages, the patent includes the following example:

[I]f a patient has an allergy to allergen X and currently takes medication Y, if these two facts are input using structured input modalities (such as by using dropdown lists for selecting allergens and medications, respectively), then the resulting data can be encoded in discrete data elements representing allergen X and medication Y, respectively, and a computer can perform[] processing on such information easily and automatically, such as by comparing the data to contraindications on a predetermined list to determine whether allergen X is contraindicated with medication Y.

Id. at 1:51–61. But because systems with structured-input modalities “constrain[] the input options available to the user, they may fail to capture information that cannot accurately be represented using the available options.” *Id.* at 1:44–48.

Conversely, systems with freeform-input modalities “allow the user to provide a wide range of input and therefore to capture subtleties in the information provided.” Ex. 1001, 1:41–44. But in those systems the speech

input “must be parsed and interpreted in an attempt to discern” its meaning before a computer can process the information. *Id.* at 1:65–2:3. And that “parsing and interpretation” may introduce errors that “can impede the ability to perform the kind of processing that can be performed easily and automatically using data” supplied through structured-input modalities. *Id.* at 2:3–6.

The ’829 patent explains that the invention provides “the advantages of both freeform and structured input modalities, while reducing or eliminating the disadvantages of both such input modalities.” Ex. 1001, 4:33–36; *see id.* at 10:60–64. The patent also explains that the invention combines the ability of freeform-input modalities “to enable users to provide unbiased and nuanced input” with the ability of structured-input modalities “to enforce requirements that certain kinds of data be input.” *Id.* at 10:64–11:1. By combining those abilities, the invention “reduce[s] the frequency of errors in the form of omissions of relevant and/or required data.” *Id.* at 4:29–32. According to the patent, “[r]educed errors and higher degrees of completeness can be particularly beneficial in contexts, such as medical reporting,” where (1) “the accuracy and completeness of reports can have an impact on human health and safety” and (2) “accurate and complete reports are necessary to comply with regulations and to obtain reimbursement for the procedures that resulted in the reports.” *Id.* at 11:22–28.

The ’829 patent describes a method that includes (1) “applying automatic speech recognition to an audio signal to produce a structured document representing contents of the audio signal,” (2) “determining whether the structured document includes an indication of compliance with

a best practice to produce a conclusion,” and (3) “inserting content into the structured document, based on the conclusion, to produce a modified structured document.” Ex. 1001, 3:8–15, 4:38–40, 5:7–9, 7:25–27, code (57), Fig. 2. The patent also describes a system that accomplishes the method. *Id.* at 3:16–27.

Figure 1A of the ’829 patent (reproduced below) is a block diagram of a system according to one embodiment of the invention. Ex. 1001, 3:39–41.

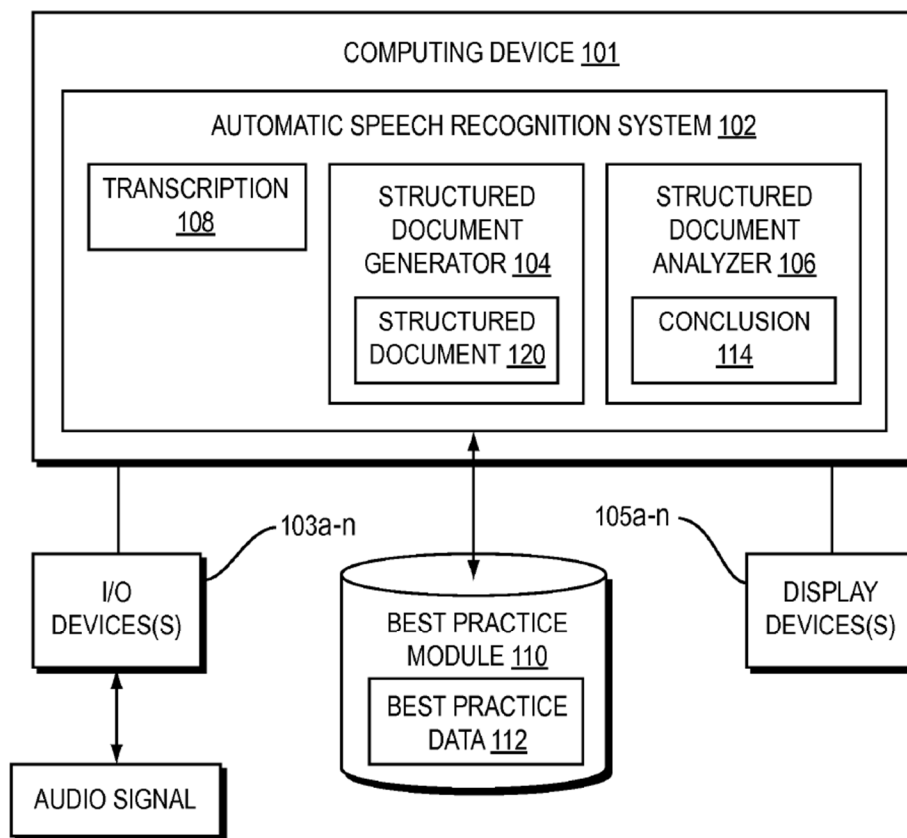


FIG. 1A

Figure 1A shows computing device 101 including automatic speech recognition system 102 with structured document generator 104 and structured document analyzer 106. *Id.* at 4:48–51, 5:9–15.

In operation, users “dictate information in freeform, as if they were dictating a document to be transcribed into a freeform transcript.” Ex. 1001, 4:41–43. Automatic speech recognition system 102 “generate[s] a transcription 108 of the audio signal and provide[s] the transcription 108” to structured document generator 104 to generate a structured document. *Id.* at 4:52–55.

Figure 1B of the ’829 patent (reproduced below) “is a block diagram depicting one embodiment of a structured document representing contents of an audio signal.” Ex. 1001, 3:42–43.

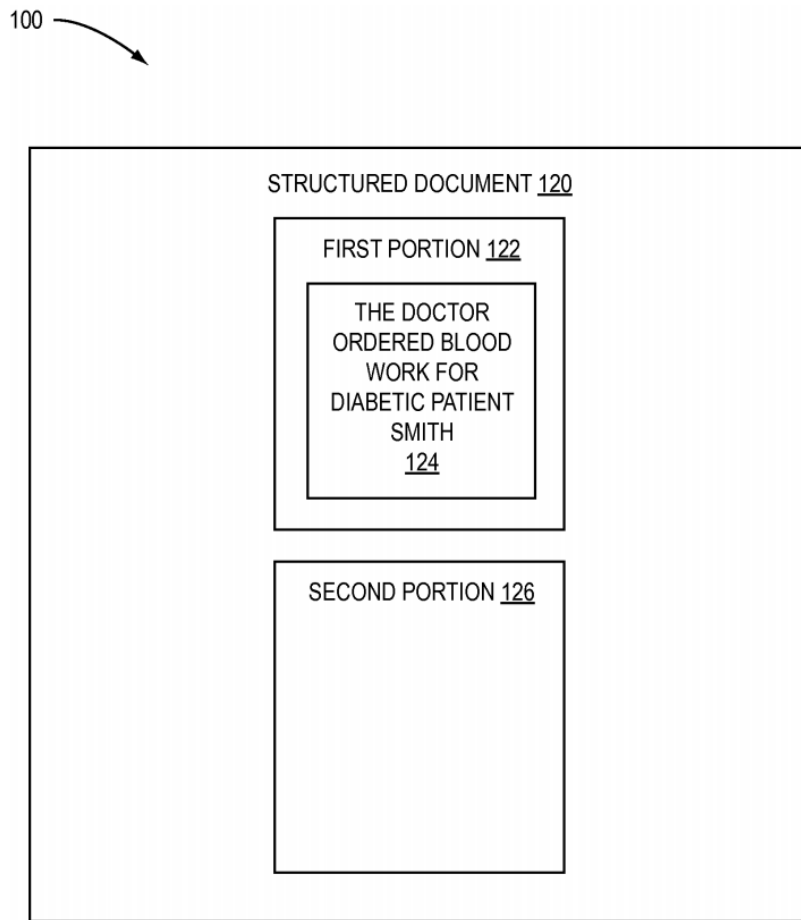


FIG. 1B

Figure 1B shows structured document 120 with first portion 122 and second portion 126. *Id.* at 4:55–63. First portion 122 “contains information 124 (e.g., ‘The doctor ordered blood work for diabetic Patient Smith’).” *Id.* Second portion 126 “does not contain any information.” *Id.*

In a preferred embodiment, a structured document “encodes concepts from the user’s speech into discrete data elements.” Ex. 1001, 4:44–47. In addition, a structured document may “include a plurality of portions,” such as “sub-templates, sub-portions or document components.” *Id.* at 4:56–58, 8:46–49; *see id.* at 3:43–44, 3:48–49, Figs. 1B, 1D.

Structured document analyzer 106 analyzes a structured document “to determine whether [it] includes an indication of compliance with a best practice and produces a conclusion that represents the outcome of the determination.” Ex. 1001, 5:9–15. Structured document analyzer 106 may determine whether the structured document includes “an indication of compliance with a best practice” based on “the presence of information” or “the absence of information” in the structured document. *Id.* at 5:15–22; *see id.* at code (57).

Best practices include “rules, guidelines, or preferences” for information “included in [a] report (such as the patient’s name and date of the patient’s visit)” and actions “required to be taken before [a] report can be completed (such as performing a particular procedure, such as a foot exam, on the patient during the visit described in the report).” Ex. 1001, 6:8–16. For instance, best practices may “take the form of rules that operate on discrete data elements in structured reports,” such as “dates, medications, allergies, and diagnoses” in medical reports. *Id.* at 6:31–33, 6:60–67.

Further, “[s]uch rules may operate on freeform text in addition to or instead of discrete data elements.” *Id.* at 6:39–40.

The system may “provide guidance to the user to provide input, such as additions to, deletions from, or modifications to” the structured document to cause it “to conform to the best practices or to reduce the extent to which” it “fails to conform to the best practices.” Ex. 1001, 7:10–15. For instance, “structured document analyzer 106 may transmit an instruction” to “structured document generator 104 to generate a prompt within the structured document,” and “structured document generator 104 may render the modified structured document for review by the user.” *Id.* at 7:34–39. A “prompt may take the form of a form field, such as a text field, check box, or dropdown list, into which the user may directly provide input in response to the prompt.” *Id.* at 8:36–39; *see id.* at 8:56–58, Fig. 1D. The system updates the structured document with the user input. *Id.* at 7:27–34.

Figure 1D of the ’829 patent (reproduced below) “is a block diagram depicting one embodiment of a structured document modified to request additional content.” Ex. 1001, 3:48–49.

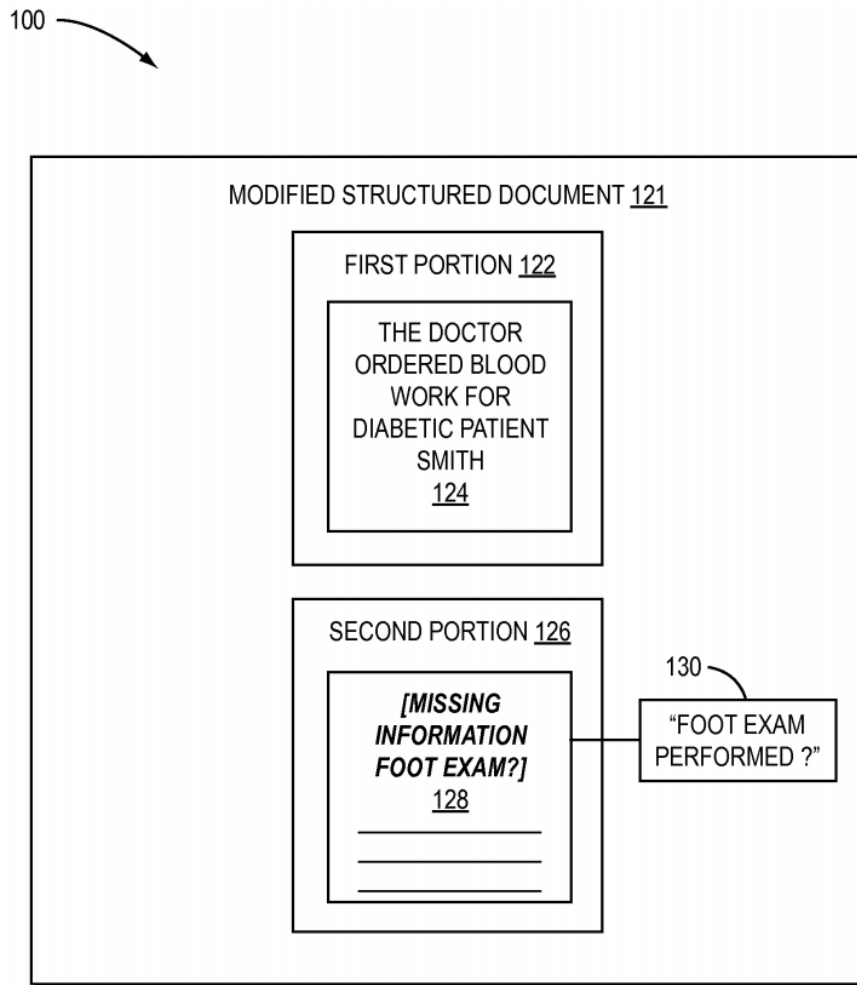


FIG. 1D

Figure 1D shows modified structured document 121 with first portion 122 and second portion 126. *Id.* at 8:49–53. First portion 122 contains information 124. *Id.* Second portion 126 does not contain any information. *Id.* But second portion 126 includes prompt 128, i.e., “a text field into which a user may provide missing information.” *Id.* at 8:53–58. In addition, second portion 126 includes label 130 “displayed near the prompt” that “draws attention to the prompt” and “provides guidance as to a type of information requested.” *Id.* at 8:53–60.

E. The Challenged Claims

Petitioner challenges independent claim 1 and eight claims that depend directly or indirectly from claim 1, i.e., claims 4, 6, 12, 13, 18, 21, 25, and 26. Pet. 7–8, 14–73. Independent claim 1 exemplifies the challenged claims and reads as follows:

1. A computer-implemented method performed by at least one computer processor, the method comprising:

(A) applying automatic speech recognition to an audio signal to produce a structured document representing contents of the audio signal;

(B) determining whether the structured document includes an indication of compliance for each of a plurality of best practices to produce a conclusion;

(C) inserting content into the structured document, based on the conclusion, to produce a modified structured document;

(D) generating a first indication that a user should provide additional input of a first type to conform the structured document to a first best practice in the plurality of best practices; and

(E) generating a second indication that the user should provide additional input of a second type to conform the structured document to a second best practice in the plurality of best practices.

Ex. 1001, 13:5–23.

F. The Asserted Prior Art

For its challenges, Petitioner relies on the following prior-art publications:

1. U.S. Patent Application Publication 2005/0228815 A1 to Carus et al., titled “Categorization of Information Using Natural Language

Processing and Predefined Templates,” and published October 13, 2005 (Ex. 1006, “Carus”).

2. Silvia Panzarasa et al., *Technical Solutions for Integrating Clinical Practice Guidelines with Electronic Patient Records*, in KNOWLEDGE REPRESENTATION FOR HEALTH-CARE: DATA, PROCESSES AND GUIDELINES 141–54 (2010) (Ex. 1007, “Panzarasa”); see Ex. 1022 ¶¶ 23, 25, 27, Attachments 1A–1B.

3. U.S. Patent Application Publication 2009/0187407 A1 to Soble et al., titled “System and Methods for Reporting,” and published July 23, 2009 (Ex. 1008, “Soble”).

G. Testimonial Evidence

To support its challenges, Petitioner relies on two declarations of Andrew Sears, Ph.D. (Ex. 1003, “Sears Decl.”; Ex. 1025, “Sears Reply Decl.”). Patent Owner relies on the declaration of Jordan Cohen, Ph.D. (Ex. 2003, “Cohen Decl.”). The record includes transcripts of Dr. Sears’s depositions (Ex. 2016, “Sears 1st Dep.”; Ex. 2022, “Sears 2nd Dep.”) and a transcript of Dr. Cohen’s deposition (Ex. 1030, “Cohen Dep.”).

H. The Asserted Grounds of Unpatentability

We instituted an *inter partes* review of claims 1, 4, 6, 12, 13, 18, 21, 25, and 26 on the following grounds:

Claims Challenged	35 U.S.C. §	Reference(s)/Basis
1, 4, 6, 12, 13, 21, 25, 26	103(a) ¹	Carus in view of an ordinarily skilled artisan’s knowledge

¹ On September 16, 2012, the Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284 (2011), took effect and amended

Claims Challenged	35 U.S.C. §	Reference(s)/Basis
12, 13, 18, 25	103(a)	Carus in view of an ordinarily skilled artisan's knowledge and Panzarasa
1, 4, 6, 12, 13, 18, 21, 25, 26	103(a)	Soble in view of an ordinarily skilled artisan's knowledge

Inst. Dec. 8–9, 39–40.

I. Burden

Petitioner bears “the burden of proving . . . unpatentability by a preponderance of the evidence.” 35 U.S.C. § 316(e); *see* 37 C.F.R. § 42.1(d) (2018).

III. PATENTABILITY ANALYSIS

A. Legal Principles: Obviousness

A patent may not be obtained “if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” 35 U.S.C. § 103(a). An obviousness analysis involves underlying factual inquiries including (1) the scope and content of the prior art; (2) differences between the claimed invention and the prior art; (3) the level of ordinary skill in the art; and (4) where in evidence, objective evidence of nonobviousness, such as commercial success, long-felt but unsolved needs, and failure of others. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18, 35–36 (1966); *Apple Inc. v. Samsung Elecs. Co.*, 839 F.3d 1034, 1047–48

35 U.S.C. § 103. Because the '829 patent's filing date predates the AIA's amendments to § 103, this decision refers to the pre-AIA version of § 103.

(Fed. Cir. 2016) (en banc). When evaluating a combination of references, an obviousness analysis should address “whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007).

We analyze the obviousness issues according to these principles.

B. Level of Ordinary Skill in the Art

Factors pertinent to determining the level of ordinary skill in the art include (1) the educational level of the inventor; (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) the sophistication of the technology; and (6) the educational level of workers active in the field. *Envtl. Designs, Ltd. v. Union Oil Co.*, 713 F.2d 693, 696–97 (Fed. Cir. 1983). Evidence for these factors may not exist in every case, and one or more of these or other factors may predominate in a particular case. *Id.* Moreover, these factors are not exhaustive, but are merely a guide to determining the level of ordinary skill in the art. *Daiichi Sankyo Co. v. Apotex, Inc.*, 501 F.3d 1254, 1256 (Fed. Cir. 2007). Further, the prior art itself may reflect an appropriate skill level. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

Dr. Sears described a person of ordinary skill in the art as follows:

someone who has a bachelor’s degree in computer science or a closely related field with 4–6 years of experience or a master’s degree and/or PhD in computer science or a closely related field with 2–3 years of experience, the experience being in the research, design or implementation of human-centered computing applications and speech recognition technologies.

Ex. 1003 ¶ 3.

Dr. Cohen assumed that Dr. Sears correctly described a person of ordinary skill in the art. Ex. 2003 ¶¶ 29–30. Dr. Cohen used that skill level in his analysis. *Id.* ¶ 30.

We adopt Dr. Sears’s description of a person of ordinary skill in the art as consistent with the ’829 patent and the asserted prior art.

C. Claim Construction

1. GENERALLY

Because Petitioner filed the Petition after November 13, 2018, we construe claim terms “using the same claim construction standard that would be used to construe the claim in a civil action” under 35 U.S.C. § 282(b).² *See* 37 C.F.R. § 42.100(b) (2019). Under that standard, “[c]laim terms are given their ordinary and customary meaning, which is the meaning the term would have to a person of ordinary skill in the art at the time of the invention.” *Power Integrations, Inc. v. Fairchild Semiconductor Int’l, Inc.*, 904 F.3d 965, 971 (Fed. Cir. 2018) (citing *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc)).

“[T]he person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent,” including the other claims (“both asserted and unasserted”) and the written description.

² On October 11, 2018, the PTO revised its rules to harmonize the Board’s standard for claim construction with the standard used in civil actions under 35 U.S.C. § 282(b). Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board, 83 Fed. Reg. 51,340 (Oct. 11, 2018) (now codified at 37 C.F.R. pt. 42 (2019)). This rule change applies to petitions filed on or after November 13, 2018.

Phillips, 415 F.3d at 1313–14, 1321. Further, “the prosecution history can often inform the meaning of the claim language by demonstrating how” an inventor or an examiner understood the claim language. *Id.* at 1317. Thus, the meaning of a disputed claim term may be determined by “look[ing] principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17).

2. THE ORDER OF STEPS (C), (D), AND (E) IN CLAIM 1

Petitioner asserts that in claim 1 “steps D and E may be performed before step C so that the information a user is prompted to provide (steps D and E) is inserted into the structured document to produce a modified structured document (step C).” Pet. 11. Patent Owner does not dispute that assertion. *See, e.g.*, Resp. 3–20, 36–39, 62–66.

“Unless the steps of a method [claim] actually recite an order, the steps are not ordinarily construed to require one.” *Interactive Gift Express, Inc. v. Compuserve Inc.*, 256 F.3d 1323, 1342 (Fed. Cir. 2001). Based on the parties’ respective arguments and the record, we see no reason to depart from that general rule.

3. “STRUCTURED DOCUMENT”

In the Petition, Petitioner did not propose a construction for the claim term “structured document.” *See* Pet. 10–13. In its patentability analysis, Petitioner asserted that “structured document representing contents of the audio signal” encompasses a template selected based on latent information in a user’s speech and populated with information from the user’s speech. *Id.* at 18–19 (citing Ex. 1006 ¶¶ 16, 39, 47). Petitioner also asserted that

“structured document representing contents of the audio signal” encompasses a report containing “the user’s dictated speech” that “has been organized into sections.” *Id.* at 52–54 (citing Ex. 1008 ¶¶ 4, 26, 65, Fig. 4).

In the Response, Patent Owner proposed the following construction for “structured document”: “a computer-readable document that is organized into a structure that encodes concepts from a user’s speech (or other input stream) as discrete data elements.” Resp. 6; *see id.* at 5; Sur-reply 2. According to Patent Owner, “encoding means converting the concept into a *code*.” Sur-reply 6 (emphasis by Patent Owner); *see* Tr. 54:21–22. As an example, Patent Owner explained that “rubella or German measles or three-day measles” are “all the same disease” and that a code or “unique number” would denote that disease “no matter how the doctor said it.” Tr. 50:15–21, 58:8–59:4. In addition, Patent Owner contended that a “structured document” is “not meant for direct viewing by users.” Resp. 53–54.

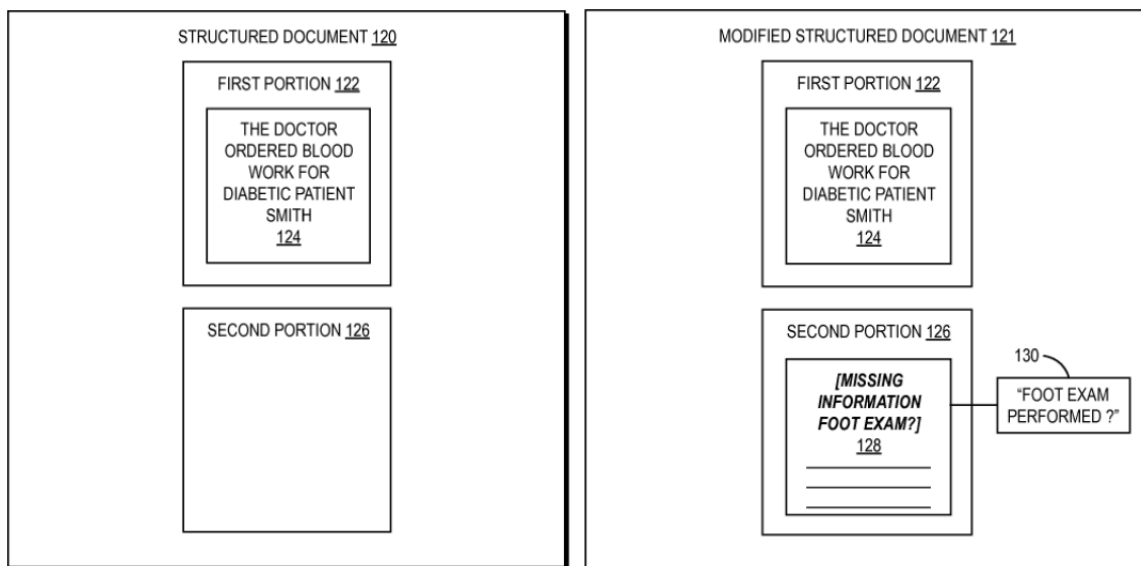
In the Reply, Petitioner asserted that Patent Owner’s proposed construction of “structured document” improperly excludes documents intended for user review. *See* Reply 4–10. In addition, Petitioner contended that a textual document “organized into a particular format for user review” is a “structured document.” *Id.* at 8; *see id.* at 5. Petitioner also contended that a textual document “intended for user review can also encode concepts into discrete data elements by organizing information from the user’s speech into a particular format to emphasize or otherwise identify the concepts.” *Id.* at 9.

Thus, the parties agree that a “structured document” is organized into a structure or particular format. But their respective arguments require us to

address the following issues: (1) whether a “structured document” excludes documents intended for user review; and (2) whether a “structured document” encodes concepts as discrete data elements in coded form or just organizes information as discrete data elements. For the reasons explained below, we conclude that a “structured document” (1) does not exclude documents intended for user review and (2) organizes information as discrete data elements.

(a) Documents Intended for User Review

Petitioner contends that the ’829 patent “identifies Figures 1B and 1D as depicting embodiments ‘of a structured document.’” Reply 4 (citing Ex. 1001, 3:43–50). Petitioner also contends that Figures 1B and 1D “plainly illustrate that the structured document is intended to be viewable by a user.” *Id.* at 4–5. To support those contentions, Petitioner provides the versions of Figures 1B and 1D reproduced below (Reply 5):



Ex. 1001.004, .006, Figs. 1B & 1D

The preceding versions of Figures 1B and 1D depict the figures side by side. See Ex. 1001, 3:42–43, 3:48–49, Figs. 1B, 1D; Reply 4–5. Figure 1B shows

structured document 120, and Figure 1D shows modified structured document 121. Ex. 1001, 4:55–58, 8:49–53; *see id.* at 3:42–43, 3:48–49.

Further, Petitioner asserts that Figure 1D includes prompt 128 and label 130 that “draws attention to the prompt.” Reply 5 (citing Ex. 1001, 8:53–60). According to Petitioner, “a label that ‘draws attention’ to a prompt is one that is viewable by a user.” *Id.*

Patent Owner contends that “[t]he ’829 patent extracts the underlying concepts or meaning of the user’s freeform speech (and structured input) to produce a structured document.” Resp. 2. Patent Owner also contends that the extracted concepts “are encoded as discrete data elements in the structured document that are easily manipulable by a computer, facilitating later processing.” *Id.* (citing Ex. 1001, 4:37–5:6; Ex. 2003 ¶¶ 31–42). Patent Owner admits that a structured document is “viewable.” Sur-reply 5 (citing Ex. 2006, Fig. 4C). But Patent Owner asserts that “a rendering . . . is not the underlying structured document itself.” *Id.* (citing Ex. 2006, Fig. 4B).

The ’829 patent indicates that a structured document is “viewable” and intended for user review. *See* Ex. 1001, 3:42–43, 3:48–49, 4:56–63, 5:51–58, 6:58–7:6, 8:44–60, Figs. 1B, 1D. The patent’s specification uses the terms “structured document” and “structured report” synonymously. *See, e.g., id.* at 3:42–43, 3:48–49, 4:44–63, 5:3–6:5, 6:29–8:60, 9:9–10:33, Figs. 1B, 1D; *see also* Ex. 1025 ¶ 6. The specification explains that a structured report “may be displayed as a document containing the text of the report, visually structured into sections” with “discrete data elements (such as dates, medications, allergies, and diagnoses) emphasized or otherwise formatted to indicate that they are discrete data elements and/or to indicate

the types of such discrete data elements.” Ex. 1001, 6:60–67. The specification also explains that a structured report “may be rendered in a format that generally resembles that of a plain text document rendered by a conventional word processor, but with the structured elements of the document (e.g., sections and lower-level concepts) visually emphasized or otherwise indicated.” *Id.* at 7:1–6.

In addition, the ’829 patent’s specification discloses supplying a structured document to “users who are responsible for editing, reformatting, and proofreading the document.” Ex. 1001, 5:51–58. Users cannot edit, reformat, or proofread a structured document unless it is “viewable” and intended for user review.

Further, Figure 1B shows structured document 120, and Figure 1D shows modified structured document 121. Ex. 1001, 4:55–58, 8:49–53; *see id.* at 3:42–43, 3:48–49. In each figure, the structured document is “viewable” and intended for user review.

For the reasons discussed above, we conclude that a “structured document” does not exclude documents intended for user review.

(b) Documents that Organize Information as Discrete Data Elements

The claim language supports the conclusion that a “structured document” organizes information as discrete data elements. *See* Ex. 1001, 13:29–35 (claims 3 and 4), 14:35–45 (claims 21–24). Specifically, certain dependent claims require a “structured input element” for receiving user input. *Id.* Structured input elements “require data to be stored in the form of discrete data elements that computers can act on easily and automatically.” *Id.* at 1:49–51. Hence, structured input elements help a structured document organize information as discrete data elements.

The '829 patent's specification supports the conclusion that a "structured document" organizes information as discrete data elements. *See, e.g.,* Ex. 1001, 1:49–65, 11:46–64. The specification explains that when a document organizes information as discrete data elements, "the meaning of the data is available to and unambiguously processable by a computer without the need for further interpretation." *Id.* at 1:62–65. For example, "if a patient has an allergy to allergen X and currently takes medication Y" and "if these two facts are input using structured input modalities" that produce "discrete data elements representing allergen X and medication Y, respectively," then "a computer can perform[] processing on such information easily and automatically, such as by comparing the data to contraindications on a predetermined list to determine whether allergen X is contraindicated with medication Y." *Id.* at 1:51–61.

According to Patent Owner, discrete data elements "are easily manipulable by a computer." Resp. 2; *see* Ex. 2003 ¶¶ 32–34, 36, 39, 58–59. According to Dr. Cohen, "storing the underlying facts (concepts) in a standardized format," i.e., as discrete data elements, "makes it easier to process" them. Ex. 2003 ¶ 58. For example, a date "in a machine-readable form enables the date to be stored easily in a database and to be processed more easily than if the date were stored in a textual form." Ex. 2005, 7:32–34; *see* Ex. 2003 ¶ 58.

A claim construction should comport with the purposes of the invention. *See OSRAM GmbH v. Int'l Trade Comm'n*, 505 F.3d 1351, 1358 (Fed. Cir. 2007). Here, the '829 patent explains that the invention exploits the ability of structured-input modalities "to enforce requirements that certain kinds of data be input." Ex. 1001, 10:64–11:1; *see id.* at 4:33–36,

10:60–64; Ex. 2003 ¶ 35. By organizing information as discrete data elements, a structured document exploits the ability of structured-input modalities “to enforce requirements that certain kinds of data be input.”

To support its assertion that a structured document encodes concepts as discrete data elements in coded form, Patent Owner cites the ’829 patent’s specification. *See* Resp. 7–9. In particular, Patent Owner contends that the specification demonstrates that a structured document encodes concepts because the specification “explains that the claimed structured document ‘encodes concepts from the user’s speech [*i.e.*, an audio signal] into discrete data elements.’” Resp. 7 (alteration by Patent Owner) (quoting Ex. 1001, 4:44–47).

As Patent Owner contends, the ’829 patent’s specification states that “the structured document 120 encodes concepts from the user’s speech into discrete data elements.” Ex. 1001, 4:44–47; *see* Resp. 7. But before that statement, the specification refers to “embodiments of the present invention” that “may” operate in a particular way. *Id.* at 4:40–43. And after that statement, the specification explains that “the foregoing embodiments are provided as illustrative only, and do not limit or define the scope of the invention.” *Id.* at 12:13–16. Hence, the specification’s statement about encoding concepts into discrete data elements does not define a structured document.

To support its assertion that a structured document encodes concepts as discrete data elements in coded form, Patent Owner cites three additional portions of the ’829 patent’s specification. Resp. 7–8 (citing Ex. 1001, 6:31–39, 6:58–67, 12:1–12). But those additional portions do not indicate that a structured document encodes concepts as discrete data elements in

coded form. Those additional portions do not discuss encoding concepts and instead indicate that a structured document may contain freeform text as well as discrete data elements. *See* Ex. 1001, 6:31–40, 6:58–67, 12:1–12. For example, the specification explains that best practices for a structured document “may operate on freeform text in addition to or instead of discrete data elements.” *Id.* at 6:31–40; *see id.* at 8:4–9 (explaining that “[t]he user may provide the input in freeform or in a structured form”).

Claim scope “is properly limited to the preferred embodiment if the patentee uses words that manifest a clear intention to restrict the scope of the claims to that embodiment.” *Info-Hold, Inc. v. Applied Media Techs. Corp.*, 783 F.3d 1262, 1267 (Fed. Cir. 2015). Here, Patent Owner identifies no such words in the ’829 patent’s specification. *See* Resp. 2–3, 6–13. Further, Federal Circuit case law “counsels against incorporating a feature of a preferred embodiment into the claims.” *Arthrex, Inc. v. Smith & Nephew, Inc.*, 935 F.3d 1319, 1330 (Fed. Cir. 2019).

To support its assertion that a structured document encodes concepts as discrete data elements in coded form, Patent Owner also relies on two patents identified in the ’829 patent’s specification. *See* Resp. 9–13. In particular, Patent Owner contends that the specification identifies the following commonly owned patents as disclosing techniques for “producing structured documents by extracting concepts from the received audio stream and encoding them as discrete data elements”: (1) U.S. Patent No. 7,584,103 B2, titled “Automated Extraction of Semantic Content and Generation of a Structured Document from Speech” (Ex. 2005, “the ’103 patent”); and (2) U.S. Patent No. 7,716,040 B2, titled “Verification of

Extracted Data” (Ex. 2006, “the ’040 patent”). Resp. 9 (citing Ex. 1001, 4:48–5:6); *see* Sur-reply 2–3.

Patent Owner urges that the ’103 patent’s purpose “is to ‘produce a *structured textual document* 310 which *includes content from the spoken audio stream* 302, in which the content is organized into a particular structure, *and where concepts are identified and interpreted in a machine-readable form.*”” Resp. 9–10 (emphases by Patent Owner) (quoting Ex. 2005, 7:1–6). Patent Owner argues that the ’103 patent “extracts concepts from free-form speech and encodes them in an exemplary structured document implemented in” extensible markup language (XML). *Id.* at 10 (citing Ex. 2005, 7:11–32). Further, Patent Owner asserts that the ’040 patent “explains that structured documents encode concepts as discrete data elements, such as the concept of allergy and the more specific concept that the patient is allergic to penicillin.” *Id.* at 11–12 (citing Ex. 2006, Fig. 4C).

Patent Owner’s reliance on the ’103 and ’040 patents is misplaced. The ’829 patent describes the ’103 and ’040 patents as disclosing “[e]xamples of techniques that may be used to create” a structured document. Ex. 1001, 4:63–5:3. The ’829 patent makes clear that those techniques “are merely examples of techniques that may be used to generate a structured document” and “do not constitute limitations of the present invention.” *Id.* at 5:3–6. Further, the ’829 patent does not expressly incorporate the ’103 and ’040 patents by reference. *See, e.g., id.* at 4:63–5:6; *see also id.* at 1:8–12 (expressly incorporating a provisional application by reference and no other documents). So the ’103 and ’040 patents are not part of the ’829 patent’s specification for claim-construction purposes.

For the reasons discussed above, we conclude that the term “structured document” encompasses a document that organizes information as discrete data elements but does not require a document that encodes concepts as discrete data elements, as proposed by Patent Owner. Thus, we do not fully adopt Patent Owner’s proposed construction, i.e., “a computer-readable document that is organized into a structure that encodes concepts from a user’s speech (or other input stream) as discrete data elements.” See Resp. 6. We construe the term to mean “a document organized into a structure or particular format that organizes information as discrete data elements.”

4. OTHER TERMS

We determine that no other claim terms require explicit constructions to decide the patentability issues. “[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.” *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999); see *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017).

D. Obviousness over Carus in View of an Ordinarily Skilled Artisan’s Knowledge: Claims 1, 4, 6, 12, 13, 21, 25, and 26

Petitioner challenges claims 1, 4, 6, 12, 13, 21, 25, and 26 under § 103(a) as obvious over Carus in view of an ordinarily skilled artisan’s knowledge. See Pet. 7, 14–38. Below, we provide an overview of Carus, and then we consider the obviousness issues raised by the parties.

1. OVERVIEW OF CARUS (EX. 1006)

Carus explains that “[d]ue to the number of potential uses of medical reports and the corresponding medical information fields that may need to

be filled, it may be difficult for a physician to remember to include” all information required for medical reports under different categorization schemes with different informational structures. Ex. 1006 ¶¶ 6, 12. To illustrate scheme diversity, Carus discusses the following “exemplary systems for identifying and coding medical problems, procedures, and medications”: (1) Joint Commission on the Accreditation of Healthcare Organizations (JCAHO); (2) International Classification of Diseases 9th Revision Clinical Modification (ICD-9-CM); (3) Current Procedural Terminology 4th Edition (CPT-4); and (4) Medicare Evaluation and Management (E&M) codes. *Id.* ¶¶ 6–12. Carus also discusses the Systematized Nomenclature of Medicine Clinical Terms (SNOMED CT) for coding medical concepts. *Id.* ¶¶ 54, 59.

Carus discloses generating medical reports containing all information required under different categorization schemes because missing information “reduce[s] efficiency” and “increase[s] expenses and time-on-task.” Ex. 1006 ¶ 13. Carus facilitates report preparation by providing users with “prompts or reminders to collect certain predetermined information and assistance in collecting and classifying” the information required to complete a report. *Id.* ¶¶ 14, 39; *see id.* ¶¶ 7–13, 15, 48, 52.

Carus’s Figure 1 (reproduced below) “shows a system architecture.” Ex. 1006 ¶¶ 24, 31.

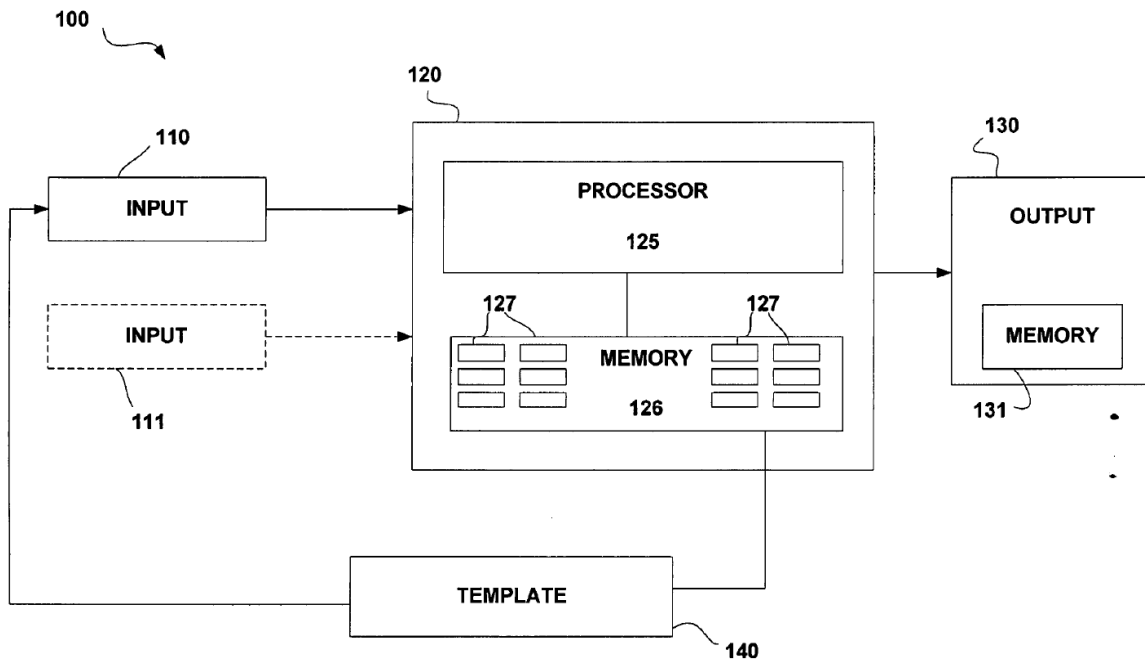


FIG. 1

Figure 1 depicts a system with first input 110 and second input 111 coupled to processing device 120 and processing device 120 coupled to output 130.

Id. ¶ 31. Processing device 120 “include[s] a processor 125 and a memory 126” that “store[s] a number of templates 127.” *Id.*

First input 110 may comprise “a microphone for receiving voice signals and converting these signals into a data stream associated with recorded speech.” Ex. 1006 ¶ 31. Second input 111 may comprise “a stylus and a touch screen, a button, a computer mouse, a keyboard, or other input device.” *Id.*

In operation, a user, e.g., a physician, “dictates information into” first input 110 for conversion “into an analog or digital input data stream” provided to processing device 120. Ex. 1006 ¶ 32. The input audio data includes “generic data,” i.e., “all data that is recorded via dictation or other information recordation means.” *Id.* ¶¶ 32, 37. The generic data may

include “latent information,” i.e., information “associated with a predetermined classification of information,” such as information related to an allergy, treatment, medication, or particular medical problem. *Id.* ¶¶ 33, 37; *see id.* ¶¶ 18–19.

Processing device 120 employs natural-language processing to process the input audio data. Ex. 1006 ¶¶ 34, 37. Based on latent information in the input audio data, the processing device retrieves a template and presents the template to the user. *Id.* ¶¶ 16, 35; *see id.* ¶¶ 18, 20–21, 38–39. “The template may be presented to the user via any acceptable user-cognizable means,” e.g., “computer display, hard copy, or any other suitable output that is perceptible to a user.” *Id.* ¶ 38.

Using the template, the user “input[s] additional data, i.e., template-specific data into the processing device 120.” Ex. 1006 ¶ 35; *see id.* ¶ 39. Further, the “user may continue to input data into the system,” and it “review[s] additional portions of generic data contemporaneously to determine if there are any more templates that need to be presented” to the user. *Id.* ¶ 40.

“After a determination has been made that the user has addressed all of the templates, and all of the template-specific data has been received,” the template-specific data and the generic data are “further processed.” Ex. 1006 ¶ 43; *see id.* ¶ 36, code (57). Further processing may include generating “a specific report or a number of different reports” or “other structured or machine-readable outputs” based on “the generic data and the template-specific data.” *Id.* ¶¶ 36, 41, 44; *see id.* ¶¶ 16, 40, code (57). For instance, structured reports may include (1) accreditation reports containing core measures concerning particular medical conditions, (2) billing reports

containing billing codes, e.g., Medicare E&M codes, and (3) patient records.
Id. ¶¶ 7–12, 17, 19, 22, 36, 40–41, 43–44.

2. INDEPENDENT CLAIM 1

(a) Preamble

Claim 1’s preamble recites “[a] computer-implemented method performed by at least one computer processor.” Ex. 1001, 13:5–6.

Petitioner contends that Carus teaches this feature because “Carus discloses that ‘the present invention may include a method including receiving an input stream of data and processing the input stream of data.’” Pet. 16–17 (quoting Ex. 1006 ¶ 16); *see* Ex. 1003, A1. Further, Petitioner asserts that Carus “describes that the input ‘can be coupled to a processing device 120’ which ‘can include a processor 125 and a memory 126.’” Pet. 17 (quoting Ex. 1006 ¶ 31); *see* Ex. 1003, A1.

Patent Owner does not make any arguments specific to claim 1’s preamble. *See, e.g.*, Resp. 24–39.

Generally, a preamble does not limit a claim. *Allen Eng’g Corp. v. Bartell Indus., Inc.*, 299 F.3d 1336, 1346 (Fed. Cir. 2002). Here, we need not decide whether claim 1’s preamble limits the claim because we agree with Petitioner that Carus teaches “[a] computer-implemented method performed by at least one computer processor.” Specifically, Carus discloses processing device 120 with processor 125 and memory 126. Ex. 1006 ¶ 31; *see* Ex. 1003 ¶ 47, A1. Carus also discloses a method for “receiving an input stream of data,” e.g., dictation, and “processing the input stream of data” by providing the input stream of data to processor 125. Ex. 1006 ¶¶ 16, 32, 34; *see* Ex. 1003 ¶ 47, A1.

(b) Step (A)

Claim 1 recites “(A) applying automatic speech recognition to an audio signal to produce a structured document representing contents of the audio signal.” Ex. 1001, 13:7–9.

Petitioner contends that Carus teaches step (A) because Carus “states that the invention ‘relates generally to . . . categorizing input data **in speech recognition systems**[.]’” Pet. 17 (alteration and emphasis by Petitioner) (quoting Ex. 1006 ¶ 3); *see* Ex. 1003, A2. Petitioner also contends that Carus “discloses that ‘data . . . is recorded via dictation or other information recordation means,’ and may be ‘processed using, for example, natural language processing.’” Pet. 17 (alteration by Petitioner) (quoting Ex. 1006 ¶ 37); *see* Ex. 1003, A2–A3. Further, Petitioner asserts that an ordinarily skilled artisan would have understood that automatic speech recognition (ASR) precedes natural-language processing (NLP). Pet. 17.

To support Petitioner, Dr. Sears stated that Carus’s disclosure “that a user ‘**dictates information**’ and that ‘the speech may be converted into an analog or digital input data stream’” refers to “applying automatic speech recognition to convert the user’s audio input to a text output.” Ex. 1003, A2 (emphasis by Dr. Sears) (quoting Ex. 1006 ¶ 32). Dr. Sears also stated that “selecting a specific template based on the contents of the audio signal,” as Carus discloses, “means that the structured document represents the contents of the audio signal because the template was chosen *based on* the contents of the audio signal.” *Id.* at A4 (emphasis by Dr. Sears).

In addition, Dr. Sears noted Carus’s disclosure about “prompting the user to provide *additional* information, *i.e.*, information that was not already extracted and inserted into the template.” Ex. 1003, A4–A5 (emphasis by

Dr. Sears) (citing Ex. 1006 ¶ 39). Dr. Sears explained that “[t]his template with the user’s generic data is a structured document that represents the contents of the audio signal that is produced by applying automatic speech recognition to the user’s audio signal.” *Id.* at A5.

Patent Owner disputes that Carus teaches step (A). *See* Resp. 24–32; Sur-reply 9–17. In particular, Patent Owner contends that Petitioner “failed to consistently point to a ‘structured document’ in each claim step.” Resp. 24; *see* Sur-reply 10. According to Patent Owner, Petitioner identified a “template” as the “structured document” required by steps (A) and (B) but identified a “document” as the “structured document” required by step (C). Resp. 24–25; *see* Sur-reply 10. Further, Patent Owner asserts that Petitioner’s position conflicts with Dr. Sears’s position because Dr. Sears identified a “report” as the “structured document” required by step (B). *See* Resp. 34, 42–43; Sur-reply 10.

In addition, Patent Owner contends that Carus “does not produce templates by applying ASR to an audio signal” because “Carus *predefines* its templates to tell the user what types of information to provide.” Resp. 26–27 (emphasis by Patent Owner) (citing Ex. 1006 ¶¶ 15, 34–35, 45, 61, code (54); Ex. 2003 ¶¶ 106–119); *see* Sur-reply 10. Patent Owner also contends that because “Carus’s templates are predefined and static,” the templates (1) “are *not* produced by applying ASR to an audio signal,” (2) “do *not* represent the contents of the audio signal,” and (3) “are *not* structured documents.” Resp. 32 (emphasis by Patent Owner); *see* Sur-reply 16. Further, Patent Owner asserts that “Carus does not populate its templates *at all*.” Sur-reply 16–17 (emphasis by Patent Owner); *see id.* at 12.

In response, Petitioner asserts that an ordinarily skilled artisan would have understood Carus “to disclose that the template becomes the report, *i.e.*, that the template and the report refer to” the same structured document. Reply 15 (citing Ex. 1006 ¶ 36; Ex. 1025 ¶ 17); *see id.* at 16. Petitioner also asserts that (1) a template prompts a user to provide additional information and (2) “it would make no sense for [a] template to prompt a user to provide additional information but never include this information in the report that is created from the template.” *Id.* at 16.

In addition, Petitioner contends that Carus selects a template “specifically *because* it encodes elements of the user’s speech, *e.g.* that a patient has a particular disease or had a certain procedure performed.” Reply 11 (emphasis by Petitioner) (citing Ex. 1006 ¶ 35; Ex. 1025 ¶¶ 20–24). Petitioner also contends that a template selected based on elements of the user’s speech “contains data elements that are *specific* to the user’s audio stream – *i.e.*, that it encodes a concept from the user’s speech into a discrete data element.” *Id.* at 11–12 (emphasis by Petitioner).

We agree with Petitioner that Carus teaches step (A). Carus discloses that a user, *e.g.*, a physician, “dictates information” for conversion “into an analog or digital input data stream” provided to a processing device. Ex. 1006 ¶ 32. The input audio data includes “generic data,” *i.e.*, “all data that is recorded via dictation or other information recordation means.” *Id.* ¶¶ 32, 37. The generic data may include “latent information,” *i.e.*, information “associated with a predetermined classification of information,” such as information related to an allergy, treatment, medication, or particular medical problem. *Id.* ¶¶ 33, 37; *see id.* ¶¶ 18–19. Based on latent information in the input audio data, the processing device retrieves a

template and presents the template to the user. *Id.* ¶¶ 16, 35; *see id.* ¶¶ 18, 20–21, 38–39; Ex. 1003, A3–A4; Ex. 1025 ¶ 18.

The template presented to the user contains information from the input audio data required by the template. *See* Ex. 1006 ¶ 39; Ex. 1003, A4–A5; Ex. 1025 ¶¶ 18, 22. Carus demonstrates this by discussing an example involving a surgical procedure and JCAHO-required performance measures for surgical infection prevention. Ex. 1006 ¶ 39; *see id.* ¶¶ 6–7. In particular, JCAHO requires eight performance measures for surgical infection prevention, i.e., “[1] admission date, [2] date of birth, [3] ICD-9-CM principal procedure code, [4] ICD-9-CM other procedure code, [5] ICD-9-CM principal diagnosis code, [6] admission diagnosis, [7] surgery performed during stay, and [8] infection prior to anesthesia.” Ex. 1006 ¶ 39; *see id.* ¶ 7.

In Carus’s example involving a surgical procedure, the input audio data includes “the fact that a particular patient is over eighteen years old and that they are going to have a particular surgical procedure performed.” Ex. 1006 ¶ 39. The latent information in this example includes the “identification of the surgical procedure.” *Id.* Based on the input audio data and using natural-language processing, the processor accesses “the appropriate JCAHO-based template to remind the physician that additional data (i.e., ICD-9-CM other procedure code, ICD-9-CM principal diagnosis code, admission diagnosis, surgery performed during stay, and infection prior to anesthesia) may be required.” *Id.*; *see* Ex. 1003, A7. “By prompting the physician to record this additional information, the record associated with that patient’s visit may be kept more accurately and more completely.” Ex. 1006 ¶ 39.

Although JCAHO requires eight performance measures for surgical infection prevention, the retrieved template in this example prompts the physician for only five of the eight performance measures, i.e., “[1] ICD-9-CM other procedure code, [2] ICD-9-CM principal diagnosis code, [3] admission diagnosis, [4] surgery performed during stay, and [5] infection prior to anesthesia.” Ex. 1006 ¶ 39. Thus, as Dr. Sears stated, the retrieved template contains information “from the input stream of data that was extracted into the template,” and “the user is prompted to provide template-specific information that could not be extracted from the user’s original speech input.” Ex. 1025 ¶ 18; *see* Ex. 1003, A4–A5.

After the user provides the remaining template-specific data, the processing device may use “the generic data and the template-specific data” to generate “a specific report or a number of different reports” or “other structured or machine-readable outputs.” Ex. 1006 ¶¶ 36, 41, 44; *see id.* ¶¶ 16, 40, code (57); Ex. 1025 ¶ 18. For instance, “latent information may be placed into predetermined locations within a document, such as, for example, a natural language patient record (NLPR).” Ex. 1006 ¶ 43; *see id.* ¶ 40. Accordingly, as Petitioner asserts, a completed template becomes a report. *See* Ex. 1006 ¶¶ 39–41, 43–44; Ex. 1025 ¶¶ 17–19; Reply 15–16.

A template retrieved based on latent information in the input audio data and partially populated with information from the input audio data is a “structured document,” i.e., a document organized into a structure or particular format that organizes information as discrete data elements. *See* Ex. 1003, A4–A5; Ex. 1025 ¶¶ 18, 24; *supra* § III.C.3. First, a template is organized into a structure or particular format. One dictionary defines “template” as “a predesigned document that contains formatting and, in

many cases, generic text.” Ex. 1028, 514–15 (Microsoft Computer Dictionary (5th ed. 2002)³); *see* Ex. 1025 ¶ 10. Another dictionary defines “template” as “a preset format for a document or file, used so that the format does not have to be recreated each time it is used.” Ex. 3 (Concise Oxford American Dictionary (2006)) to Ex. 2022 (Sears 2nd Dep.); *see* Ex. 2022, 24:2–15, 26:11–18. Dr. Sears explained that both definitions “basically deal with the idea that you’ve got some predefined structure or format for a document that can serve as a guide when . . . that document is being created.” Ex. 2022, 27:17–28:13; *see id.* at 28:14–29:2.

Second, a retrieved and partially populated template organizes information as discrete data elements, e.g., dates and ICD-9 codes extracted from a user’s speech. *See* Ex. 1006 ¶ 39; *see also id.* ¶¶ 16, 19, 36, 43, code (57); Ex. 1025 ¶ 22. As discussed above, the ’829 patent describes the ’040 patent as disclosing “[e]xamples of techniques that may be used to create” a structured document. Ex. 1001, 4:63–5:3; *see supra* § III.C.3. The ’040 patent explains that “[v]arious standards exist for encoding structured documents” and that “existing techniques for encoding medical documents include” SNOMED CT, CPT, and ICD-9. Ex. 2006, 5:32–38; *see* Ex. 2003 ¶¶ 65–66. For instance, ICD-9 contains “a numerical list of the disease code numbers in tabular form.” Ex. 1003, A7.

In Carus’s example involving a surgical procedure, the retrieved template prompts the physician for only five of the eight JCAHO-required performance measures, i.e., “[1] ICD-9-CM other procedure code, [2] ICD-

³ For this publication and other publications, a page number in the citation references a page number in the publication itself rather than a page number added by Petitioner to the exhibit, e.g., 1028.001, 1028.002, 1028.003, etc.

9-CM principal diagnosis code, [3] admission diagnosis, [4] surgery performed during stay, and [5] infection prior to anesthesia.” Ex. 1006 ¶ 39; *see* Ex. 1025 ¶¶ 18, 22. Thus, the retrieved template included three of the eight JCAHO-required performance measures, i.e., “[1] admission date, [2] date of birth, [3] ICD-9-CM principal procedure code,” as discrete data elements extracted from the user’s speech. *See* Ex. 1006 ¶ 39.

In addition, a template retrieved based on latent information in the input audio data and partially populated with information from the input audio data “represent[s] contents of the audio signal” as required by step (A). Because latent information in the input audio data determines what template to retrieve, the retrieved template “represent[s] contents of the audio signal.” Ex. 1003, A4; Ex. 1025 ¶ 23; *see* Ex. 1006 ¶¶ 16, 35. As Dr. Sears stated, “the template would not have been selected *but for* some specific content in the user’s audio.” Ex. 1003, A4 (emphasis by Dr. Sears). Further, any discrete data elements from the input audio data that partially populate the retrieved template also “represent[] contents of the audio signal.”

Patent Owner argues that Carus does not disclose producing or modifying the template to represent the specific contents of the audio signal. Resp. 27. In particular, Patent Owner contends that “Carus gives the user the entire predefined template, including reminders to provide ‘additional information’ that has already been provided.” *Id.* at 28–29 (citing Ex. 1006 ¶ 39).

We disagree. Carus discloses generating medical reports containing all information required under different categorization schemes because missing information “reduce[s] efficiency” and “increase[s] expenses and

time-on-task.” Ex. 1006 ¶ 13; *see also* Ex. 1003 ¶ 46. Requiring a user to provide template-specific data “that has already been provided” conflicts with “Carus’s objective to combat ‘reduced efficiency, increased expenses and time-on-task.’” *See* Ex. 1025 ¶ 22 (quoting Ex. 1006 ¶ 13); *see also id.* ¶¶ 18, 21.

Patent Owner asserts that “the user enters the template-specifi[c] data into the *system*, not the templates.” Resp. 30–31 (emphasis by Patent Owner) (citing Ex. 1006 ¶¶ 38–40, 45); *see* Sur-reply 10–11. As explained below for claims 3 and 21, however, Carus discloses that the user employs the template to enter the template-specific data. *See infra* § III.D.3(b). Then, Carus’s system associates the template-specific data with the template because the system uses the template-specific data and the generic data to generate “a specific report or a number of different reports” based on the template. *See* Ex. 1006 ¶¶ 36, 41, 44, 50; *see also id.* ¶¶ 16, 39–40, code (57); Ex. 1025 ¶ 18; Tr. 39:5–13. For example, the system may generate “a JCAHO-specific report associated with” a JCAHO-based template. Ex. 1006 ¶ 44; *see id.* ¶¶ 39, 41, 50. Thus, Patent Owner’s assertion that “the user enters the template-specifi[c] data into the *system*, not the templates,” overlooks system operation and the relationship between the template-specific data and the template. *See* Resp. 30–31.

(c) Step (B)

Claim 1 recites “(B) determining whether the structured document includes an indication of compliance for each of a plurality of best practices to produce a conclusion.” Ex. 1001, 13:10–12.

Petitioner contends that Carus teaches step (B) because “Carus discloses that after a template has been selected ‘based on the input generic

data,’ the user may then input ‘template-specific data’ which ‘may include, for example, data associated with’” JCAHO core measures. Pet. 20 (quoting Ex. 1006 ¶ 39); *see* Ex. 1003, A6. Petitioner also contends that JCAHO core measures comprise “reporting guidelines relating to specific diagnoses,” such as “acute myocardial infarction, hear[t] failure, pneumonia, pregnancy and related conditions, as well as surgical infection prevention.” Pet. 20; *see* Ex. 1003, A6–A7; Ex. 1006 ¶¶ 7–9; Ex. 1010, 1; Ex. 1011, i–ii. Petitioner asserts that each JCAHO core measure requires reporting multiple performance measures. Pet. 20–21, 23 (citing Ex. 1006 ¶ 39); *see* Ex. 1003, A6–A7. Petitioner also asserts that an ordinarily skilled artisan would have understood “that the JCAHO reporting requirements for a core measure represent a plurality of best practices.” Pet. 21; *see* Ex. 1003, A6–A7.

In addition, Petitioner contends that “Carus discloses determining whether the structured document complies with the plurality of best practices to produce a conclusion” because “Carus discloses that ‘using, for example, natural language processing, the processor can access the appropriate JCAHO-based template *to remind the physician* that additional data . . . may be required.’” Pet. 23 (emphasis by Petitioner) (quoting Ex. 1006 ¶ 39); *see* Ex. 1003, A7. According to Petitioner, “the processor will remind the physician to enter additional data in order to comply with the best practices,” e.g., JCAHO-required performance measures, if the processor determines that the retrieved template lacks template-specific data. Pet. 23.

To support Petitioner, Dr. Sears stated that it would have been obvious to an ordinarily skilled artisan “to remind the physician, the processor must first produce a conclusion that the report was not in

compliance with the plurality of best practices, such as the JCAHO performance measures associated with a core measure.” Ex. 1003, A7.

Patent Owner disputes that Carus teaches step (B). *See* Resp. 32–36; Sur-reply 17–18. In particular, Patent Owner contends that Carus “never checks” a template or anything else “for compliance with best practices.” Resp. 32; *see* Sur-reply 18. Patent Owner asserts that Carus “simply gives the user an appropriate predefined template.” Resp. 33; *see* Sur-reply 18. Patent Owner also asserts that Carus “can remind the physician to provide the desired information by simply providing a predefined template.” Resp. 35; *see* Sur-reply 18.

We agree with Petitioner that Carus teaches step (B). The ’829 patent explains that best practices include “rules, guidelines, or preferences” for information “included in [a] report (such as the patient’s name and date of the patient’s visit)” and actions “required to be taken before [a] report can be completed (such as performing a particular procedure, such as a foot exam, on the patient during the visit described in the report).” Ex. 1001, 6:8–16. For instance, best practices may “take the form of rules that operate on discrete data elements in structured reports,” such as “dates, medications, allergies, and diagnoses” in medical reports. *Id.* at 6:31–33, 6:60–67.

Carus discloses “a plurality of best practices” according to step (B). For instance, Carus discusses JCAHO core measures for evaluating hospital performance for the following conditions: (1) acute myocardial infarction (AMI); (2) heart failure (HF); (3) community acquired pneumonia (CAP); (4) pregnancy-related conditions; and (5) surgical infection prevention (SIP). Ex. 1006 ¶ 7; *see id.* ¶¶ 8–9; Ex. 1003 ¶ 48, A6–A7; Ex. 1010, 1; Ex. 1011, i–ii; Ex. 1018, 1–3. Each JCAHO core measure requires reporting multiple

performance measures, i.e., “data elements that must be collected.”

Ex. 1006 ¶¶ 8–9, 39; Ex. 1011, vi; *see* Ex. 1003, A6–A7. For example, as discussed above for step (A), JCAHO requires eight performance measures for surgical infection prevention. Ex. 1006 ¶ 39; *see supra* § III.D.2(b).

Each JCAHO-required performance measure corresponds to a best practice, e.g., a “rule[], guideline[], or preference[]” for information “included in [a] report.” *See* Ex. 1003, A6–A7; *see also* Ex. 1001, 6:8–16. As Dr. Sears stated, “[e]ach of the[] performance measures is a best practice because they represent a guideline for what information a health professional should include in a medical report related to a particular diagnosis. Collectively, the[] performance measures disclosed by Carus are a plurality of best practices.” Ex. 1003, A7.

In addition, Carus discloses determining whether a retrieved template includes “an indication of compliance for each of a plurality of best practices to produce a conclusion” according to step (B). The ’829 patent explains that a conclusion concerning an “indication of compliance” with a best practice may rest on “the presence of information” or “the absence of information” in the structured document. Ex. 1001, 5:7–22; *see id.* at code (57). The patent discloses an example where determining whether a structured document includes an “indication of compliance” with a best practice involves determining whether a structured document includes a “piece of information.” *Id.* at 5:23–27.

As discussed above for step (A), in Carus’s example involving a surgical procedure, the processor accesses “the appropriate JCAHO-based template to remind the physician that additional data (i.e., ICD-9-CM other procedure code, ICD-9-CM principal diagnosis code, admission diagnosis,

surgery performed during stay, and infection prior to anesthesia) may be required.” Ex. 1006 ¶ 39; *see* Ex. 1003, A7; *supra* § III.D.2(b). In this example, the processor determined that the retrieved template included three of the eight JCAHO-required performance measures and reminded the physician to provide the other five JCAHO-required performance measures. *See* Ex. 1006 ¶ 39. To remind the physician to provide those particular discrete data elements, the processor produced a conclusion based on “the absence of information” in the retrieved and partially populated template. *See* Ex. 1001, 5:7–22, code (57). As Dr. Sears stated, “[T]o remind the physician, the processor must first produce a conclusion that the report was not in compliance with the plurality of best practices, such as the JCAHO performance measures associated with a core measure.” Ex. 1003, A7.

In Carus’s example involving a surgical procedure, the processor determined that the retrieved template included three of the eight JCAHO-required performance measures and reminded the physician to provide the other five JCAHO-required performance measures. *See* Ex. 1006 ¶ 39. Because the processor reminded the physician to provide only some of the template-specific data, we disagree with Patent Owner’s contentions that Carus “never checks” a template or anything else “for compliance with best practices” and that Carus “simply gives the user an appropriate predefined template.” *See* Resp. 32–33; Sur-reply 18.

(d) Step (C)

Claim 1 also recites “(C) inserting content into the structured document, based on the conclusion, to produce a modified structured document.” Ex. 1001, 13:13–15.

Petitioner contends that Carus teaches step (C) because Carus “describes that the user may ‘input additional template-specific information’ that is associated with a multitude of templates relating to” best practices. Pet. 28 (quoting Ex. 1006 ¶ 40); *see* Ex. 1003, A14. Further, Petitioner asserts that Carus “explains that in response to providing the template-specific information, processing may include ‘converting dictated speech into text, and then placing relevant text into specific portions of a document.’” Pet. 28 (quoting Ex. 1006 ¶ 43); *see* Ex. 1003, A14–A15. Petitioner also asserts that an ordinarily skilled artisan would have understood “that once this additional information has been input into the structured document, the structured document would be considered a ‘modified structured document’ because it would be a newer document (*i.e.*, modified) based on the inputted information.” Pet. 28; *see* Ex. 1003, A15.

To support Petitioner, Dr. Sears stated that Carus “discloses that a user may be prompted to ‘record th[e] additional information’ that is required by the best practices.” Ex. 1003, A14 (alteration by Dr. Sears) (quoting Ex. 1006 ¶ 39). He also stated that Carus “explains that ‘[b]y prompting the physician to record this additional information, the record associated with that patient’s visit may be kept more accurately and more completely,’ further indicating that the structured document is modified by the user’s input.” *Id.* (alteration by Dr. Sears) (quoting Ex. 1006 ¶ 39).

Patent Owner disputes that Carus teaches step (C). *See* Resp. 38–39; Sur-reply 19–20. In particular, Patent Owner contends that Carus “never inserts content into its templates.” Resp. 38–39. Patent Owner also contends that Carus “presents all of the templates relevant to the input stream (or requested by the user), and then generates a report or document

using the received information” without determining whether “a template (or the report/document) complies with best practices.” *Id.* at 39 (citing Ex. 1006 ¶¶ 40, 43); *see* Sur-reply 20.

We agree with Petitioner that Carus teaches step (C). As discussed above for steps (A) and (B), in Carus’s example involving a surgical procedure, the processor accesses “the appropriate JCAHO-based template to remind the physician that additional data . . . may be required.” Ex. 1006 ¶ 39; *see* Ex. 1003, A7; *supra* § III.D.2(b)–(c). When the physician provides the missing template-specific data, the physician inserts content to produce a modified template based on “the absence of information” in the retrieved and partially populated template. Ex. 1003, A7, A14–A15. As discussed above for step (A), a completed template becomes a report. *See* Ex. 1006 ¶¶ 39–41, 43–44, 50; Ex. 1025 ¶¶ 17–19; *supra* § III.D.2(b).

Patent Owner’s contention that Carus “never inserts content into its templates” overlooks system operation and the relationship between the template-specific data and the template. *See* Resp. 38–39. As discussed above for step (A), Carus’s system associates the template-specific data with the template because the system uses the template-specific data and the generic data to generate “a specific report or a number of different reports” based on the template. *See* Ex. 1006 ¶¶ 36, 41, 44, 50; *see also id.* ¶¶ 16, 39–40, code (57); Ex. 1025 ¶ 18; Tr. 39:5–13; *supra* § III.D.2(b).

(e) Steps (D) and (E)

Claim 1 further recites “(D) generating a first indication that a user should provide additional input of a first type to conform the structured document to a first best practice in the plurality of best practices” and “(E) generating a second indication that the user should provide additional

input of a second type to conform the structured document to a second best practice in the plurality of best practices.” Ex. 1001, 13:16–23.

Petitioner contends that Carus teaches steps (D) and (E) because “Carus discloses ‘prompting the physician to record [] additional information’ that is required by the JCAHO reporting standard.” Pet. 24 (alteration by Petitioner) (quoting Ex. 1006 ¶ 39); *see* Ex. 1003, A9. Petitioner asserts that “Carus lists multiple different types of information that may be required to confirm [sic] to JCAHO core measures.” Pet. 25; *see* Ex. 1003, A10–A13. Petitioner also asserts that “Carus notes that the physician may be prompted to provide ‘additional data (*i.e.*, ICD-9-CM other procedure code, ICD-9-CM principal diagnosis code, admission diagnosis, surgery performed during stay, and infection prior to anesthesia).” Pet. 25 (quoting Ex. 1006 ¶ 39); *see* Ex. 1003, A10.

Further, Petitioner asserts that an ordinarily skilled artisan would have understood “that the use of the plural ‘data’ indicates that more than one best practice may be missing and required.” Pet. 25 (quoting Ex. 1006 ¶ 39); *see* Ex. 1003, A10. Petitioner adds that “if information indicating whether there was an infection prior to anesthesia is additional input of a first type relating to a first best practice, an ICD-9-CM code correlated to the specific infection would be additional input of a second type relating to a second best practice.” Pet. 25–26; *see* Ex. 1003, A10–A11.

Patent Owner disputes that Carus teaches steps (D) and (E). *See* Resp. 36–38; Sur-reply 19. In particular, Patent Owner contends that Petitioner cites nothing in Carus that “teaches prompting a user to enter information other than presenting the template in the first place.” Resp. 37 (citing Ex. 1006 ¶¶ 48, 52; Ex. 2003 ¶¶ 139–144). Patent Owner also

contends that Carus does not “provide additional input to ‘conform’ the *template* from steps (A) and (B)” to first and second best practices. *Id.* at 37–38 (emphasis by Patent Owner).

We agree with Petitioner that Carus teaches steps (D) and (E). As discussed above for steps (A), (B), and (C), in Carus’s example involving a surgical procedure, the processor accesses “the appropriate JCAHO-based template to remind the physician that additional data (i.e., ICD-9-CM other procedure code, ICD-9-CM principal diagnosis code, admission diagnosis, surgery performed during stay, and infection prior to anesthesia) may be required.” Ex. 1006 ¶ 39; *see* Ex. 1003, A7; *supra* § III.D.2(b)–(d). “By prompting the physician to record this additional information, the record associated with that patient’s visit may be kept more accurately and more completely.” Ex. 1006 ¶ 39.

Each part of the JCAHO-based template that “prompt[s] the physician to record this additional information” corresponds to an “indication that a user should provide additional input” of a particular type to conform the retrieved and partially populated template to a best practice in a plurality of best practices. *See* Ex. 1003, A9–A11; *see also* Ex. 1006 ¶¶ 39, 48, 52. As an example, a requirement for an ICD-9-CM other procedure code corresponds to “a first best practice.” *See* Ex. 1003, A6–A7. The template portion that prompts the physician to record the ICD-9-CM other procedure code corresponds to “a first indication that a user should provide additional input of a first type to conform” the retrieved and partially populated template to “a first best practice in the plurality of best practices.” *See id.* at A9–A11. As another example, a requirement for an ICD-9-CM principal diagnosis code corresponds to “a second best practice.” *See id.* at A6–A7.

The template portion that prompts the physician to record the ICD-9-CM principal diagnosis code corresponds to “a second indication that the user should provide additional input of a second type to conform” the retrieved and partially populated template to “a second best practice in the plurality of best practices.” *See id.* at A9–A11. By recording the ICD-9-CM other procedure code and the ICD-9-CM principal diagnosis code, the physician conforms the retrieved and partially populated template to first and second best practices. *See id.* at A9–A11, A14–A15.

Because the physician provides input to conform the retrieved and partially populated template to first and second best practices, we disagree with Patent Owner’s contention that Carus does not “provide additional input to ‘conform’ the *template* from steps (A) and (B)” to first and second best practices. *See Resp.* 37–38.

(f) Conclusion for Claim 1

For the reasons discussed above, Petitioner has shown by a preponderance of the evidence that claim 1 is unpatentable under § 103(a) as obvious over Carus in view of an ordinarily skilled artisan’s knowledge.

3. DEPENDENT CLAIMS 2, 3, AND 21

Claims 3 and 21 each depend from claim 2 and recite the same steps. Ex. 1001, 13:29–33, 14:35–39. Claims 2 and 21 read as follows:

2. The method of claim 1, wherein (C) comprises:
 - (C)(1) prompting a human user to provide the content;
 - (C)(2) receiving input from the human user representing the content; and
 - (C)(3) inserting the content into the structured document.

21. The method of claim 2:

wherein (C)(1) comprises displaying a structured input element;

wherein (C)(2) comprises receiving input from the human user in the structured input element.

Id. at 13:24–28, 14:35–39.

(a) Claim 2

Petitioner contends that Carus teaches claim 2 step (C)(1) because Carus “discloses ‘prompting the physician to record [] additional information’ that is required by the JCAHO reporting standard, such as performance measures.” Pet. 29 (alteration by Petitioner) (quoting Ex. 1006 ¶ 39); *see* Ex. 1003, A16. Petitioner contends that Carus teaches claim 2 step (C)(2) because Carus “describes that the physician may ‘record this additional information’ required by a specific reporting standard.” Pet. 29–30 (quoting Ex. 1006 ¶ 39); *see* Ex. 1003, A17. Petitioner contends that Carus teaches claim 2 step (C)(3) because Carus “explains that in response to providing the template-specific information, processing may include ‘converting dictated speech into text, and then placing relevant text into specific portions of a document.’” Pet. 30 (quoting Ex. 1006 ¶ 43); *see* Ex. 1003, A18.

Patent Owner does not make any arguments specific to claim 2. *See, e.g.,* Resp. 43–45.

We agree with Petitioner that Carus teaches claim 2’s subject matter. As discussed above for claim 1, in Carus’s example involving a surgical procedure, a JCAHO-based template “prompt[s] the physician to record” missing template-specific data, thus teaching step (C)(1). *See* Ex. 1003, A9–A11, A16; *supra* § III.D.2(e); *see also* Ex. 1006 ¶¶ 39, 48, 52. As also

discussed above for claim 1, when the physician provides the missing template-specific data, content is received and inserted to produce a modified template, thus teaching steps (C)(2) and (C)(3). *See* Ex. 1003, A14–A15, A17–A18.

(b) Claims 3 and 21

Petitioner asserts that Carus teaches “displaying a structured input element” according to step (C)(1) in claims 3 and 21 because “Carus discloses that the templates ‘may be presented to the user via any acceptable user-cognizable means, such as, for example, via audio, computer display, hard copy, or any other suitable output that is perceptible to the user.’” Pet. 30, 35 (quoting Ex. 1006 ¶ 38); *see* Ex. 1003, A19. According to Petitioner, an ordinarily skilled artisan would have understood “that the displayed template comprises a structured input element because the template has a predetermined format with predetermined data elements that are required.” Pet. 31; *see* Ex. 1003, A19–A20.

Petitioner asserts that Carus teaches “displaying a structured input element” according to step (C)(1) in claims 3 and 21 because “Carus discloses that ‘input methods may include . . . those used in database applications involving fielded input forms consisting of input fields, check boxes, radio buttons, text boxes, and other graphical input objects.’” Pet. 31 (alteration by Petitioner) (quoting Ex. 1006 ¶ 15); *see* Ex. 1003, A21. According to Petitioner, an ordinarily skilled artisan would have understood an input field or a text box “to be a structured input element because it would be contained in the template provided to the user.” Pet. 31; *see* Ex. 1003, A21.

Petitioner asserts that Carus teaches “receiving input from the human user in the structured input element” according to step (C)(2) in claims 3 and 21 because “Carus discloses receiving input from a surgeon to conform a document to a plurality of best practices” as explained for claim 1 step (C). Pet. 31; *see* Ex. 1003, A21.

Patent Owner disputes that Carus teaches the subject matter of claims 3 and 21. *See* Resp. 43–44. Patent Owner concedes that “Carus displays structured input elements.” *Id.* at 43–44. But Patent Owner contends that “Carus makes clear that these elements are not part of its templates” and that Carus “uses traditional input methods including check boxes and radio buttons *and separately* provides templates to its users.” *Id.* at 44 (emphasis by Patent Owner) (citing Ex. 1006 ¶ 15; Ex. 2003 ¶ 161).

We agree with Petitioner that Carus teaches the subject matter of claims 3 and 21. Carus discloses a computer display for presenting a template to a user. Ex. 1006 ¶ 38. As Dr. Sears stated, “Displaying a template to the human user (such as a JCAHO core measure template, or a template related to Medicare reimbursement) through a computer display means that a structured input element is displayed to the human user” because “the template would contain structured input elements that would, for example, indicate where additional information would be required.” Ex. 1003, A19. Hence, Carus teaches “displaying a structured input element” according to step (C)(1).

In addition, Carus discloses “combining traditional data input methods” with “providing templates to users to provide additional data.” Ex. 1006 ¶ 3; *see id.* ¶ 15, code (57); Ex. 1003, A19–A21. Carus states that traditional data input methods include “those used in database applications

involving fielded input forms consisting of input fields, check boxes, radio buttons, text boxes, and other graphical input objects.” Ex. 1006 ¶ 15. As Dr. Sears stated, “Each of these exemplary input methods represent a structured input element because they provide some form of constraint or guidance on the user’s input.” Ex. 1003, A21. For this reason too, Carus teaches “displaying a structured input element” according to step (C)(1).

When a computer display includes a template, e.g., a JCAHO-based template, combined with Carus’s “input fields, check boxes, radio buttons, text boxes, and other graphical input objects,” those graphical input objects prompt a user to provide content. *See* Ex. 1003, A21; Ex. 1006 ¶¶ 3, 14–15, 39, 48, 52. Moreover, by manipulating those graphical input objects, the user employs the template to enter the template-specific data. *See* Ex. 1003, A21. Thus, the system receives input from a user in a structured input element. *Id.* Hence, Carus teaches “receiving input from the human user in the structured input element” according to step (C)(2).

Because Carus discloses “combining traditional data input methods” with “providing templates to users to provide additional data,” we disagree with Patent Owner’s contention that Carus “uses traditional input methods including check boxes and radio buttons *and separately* provides templates to its users.” *See* Ex. 1006 ¶¶ 3, 15, code (57); Resp. 44. But even if provided separately from a template, Carus’s “input fields, check boxes, radio buttons, text boxes, and other graphical input objects” still prompt a user to provide content according to claim 2. In addition, claims 3 and 21 depend from claim 2 and do not specify a location for “displaying a structured input element” according to step (C)(1). Ex. 1001, 13:29–33, 14:35–39. So Patent Owner’s argument that Carus “*separately* provides

templates to its users” does not distinguish claims 3 and 21 from Carus. *See* Ex. 1003, A19–A21; Ex. 1006 ¶¶ 15, 38; Resp. 44.

For the reasons discussed above, Petitioner has shown by a preponderance of the evidence that claim 21 is unpatentable under § 103(a) as obvious over Carus in view of an ordinarily skilled artisan’s knowledge.⁴

4. DEPENDENT CLAIM 4

Claim 4 depends from claim 3 and specifies that “the structured input element comprises a form field.” Ex. 1001, 13:34–35.

Petitioner contends that Carus teaches claim 4’s subject matter because Carus discloses “fielded input forms consisting of input fields, check boxes, radio buttons, text boxes, and other graphical input objects.” Pet. 32 (quoting Ex. 1006 ¶ 15); *see* Ex. 1003, A22.

Patent Owner disputes that Carus teaches claim 4’s subject matter for the same reasons that Patent Owner disputes that Carus teaches the subject matter of claims 3 and 21. *See* Resp. 43–44.

We agree with Petitioner that Carus teaches claim 4’s subject matter because Carus discloses “fielded input forms consisting of input fields, check boxes, radio buttons, text boxes, and other graphical input objects.” Ex. 1006 ¶ 15; *see* Ex. 1003, A22. The ’829 patent identifies the following graphical input objects as examples of form fields: text fields, check boxes, and dropdown lists. Ex. 1001, 8:36–39, 13:34–35, 14:40–45. Carus’s graphical input objects correspond to form fields according to the ’829 patent. *See* Ex. 1003, A21–A22.

⁴ As noted above, Petitioner does not challenge claims 2 and 3. *See* Pet. 7–8; *supra* § II.E.

For the reasons discussed above, Petitioner has shown by a preponderance of the evidence that claim 4 is unpatentable under § 103(a) as obvious over Carus in view of an ordinarily skilled artisan's knowledge.

5. DEPENDENT CLAIM 6

Claim 6 depends from claim 1 and specifies that step (B) comprises the following steps: (1) “identifying a type of the structured document”; (2) “identifying a best practice associated with the identified type”; and (3) “determining whether the structured document includes an indication of compliance with the identified best practice to produce the conclusion.” Ex. 1001, 13:40–46.

Petitioner asserts that Carus teaches “identifying a type of the structured document” according to claim 6 because Carus discloses (1) “a set of JCAHO core measures (*i.e.*, a plurality of best practices) may relate to surgical infection prevention” and (2) “another plurality of best practices may relate to ‘ICD-9-CM classification . . . [which is] intended to facilitate the coding and identifying [of] the relative incidence of diseases.’” Pet. 32 (alterations by Petitioner) (quoting Ex. 1006 ¶ 10); *see* Ex. 1003, A23. Petitioner contends that “after applying automatic speech recognition to create a structured document relating to a patient's surgery, the system might identify the ‘type’ as relating to a staph infection in order to then determine if the correct ICD-9-CM code was used.” Pet. 32–33; *see* Ex. 1003, A23–A24.

Petitioner asserts that Carus teaches “identifying a best practice associated with the identified type” according to claim 6 because in the disclosed example “where the type of document relates to a staph infection, the best practice associated with the type would be the associated ICD-9-CM

classification code for identifying a staph infection.” Pet. 33; *see* Ex. 1003, A25.

Petitioner asserts that Carus teaches “determining whether the structured document includes an indication of compliance with the identified best practice to produce the conclusion” according to claim 6 because “Carus discloses that the physician can be reminded ‘that additional data . . . may be required’ and that the additional data may relate to an ‘ICD-9-CM principal diagnosis code.’” Pet. 33 (alteration by Petitioner) (quoting Ex. 1006 ¶ 39); *see* Ex. 1003, A26. Petitioner then contends that “to remind the physician to provide the correct ICD-9-CM diagnosis code for the infection,” the “system would need to first determine whether this information was present (*i.e.*, whether there was an indication of compliance).” Pet. 33; *see* Ex. 1003, A26.

Patent Owner disputes that Carus teaches claim 6’s subject matter. *See* Resp. 40–43; Sur-reply 21–22. In particular, Patent Owner contends that Carus’s system “already knows what type of template it retrieved” because “it selected a predefined template based on the input stream.” Resp. 41; *see* Sur-reply 21. Patent Owner also contends that claim 6 concerns claim 1 step (B) and that Petitioner impermissibly relies on the same acts in Carus for claim 6 as for claim 1 step (A). Resp. 41–42. Further, Patent Owner asserts that Petitioner fails to identify any teaching in Carus about “analyzing *generic data* to determine a type of the current template” or “analyzing *template-specific data* to determine the type of template.” Sur-reply 22 (emphases by Patent Owner).

To support Patent Owner, Dr. Cohen stated that “it makes no sense to identify the type of template (that was already done when the template was

retrieved based on the generic data) or identify a best practice associated with the template and whether it complies (that should have been done when the template was predefined).” Ex. 2003 ¶ 156. He also stated that “if the generic input data warrants a template regarding staph infections, then Carus will fetch an appropriate predefined staph-infection template.” *Id.* (citing Ex. 1006 ¶ 39).

In response, Petitioner argues that Carus “renders obvious creating ‘a structured document relating to a patient’s surgery,’ *i.e.*, selecting a template based on the fact that the patient had a surgery,” and “separately determining the ‘type’ *after* the template is selected in order to remind the user to input information that conforms with a best practice associated with that type.” Reply 18 (emphasis by Petitioner) (quoting Pet. 33). As a specific example, Petitioner asserts that Carus renders obvious separately determining the “type” after template selection “by analyzing the generic data to determine if the patient is male or female and then determining if the structured document complies with a best practice that is gender-specific (*e.g.*, if female, noting if the patient is pregnant).” *Id.* (citing Ex. 1025 ¶ 25).

To support Petitioner, Dr. Sears explained that selecting a template based on “the fact that a surgical procedure was performed” does not mean “that all ‘types’ would necessarily have been determined when the template was selected.” Ex. 1025 ¶ 25. He explained that “some surgical procedures might require additional information that is gender-specific, while others may not,” and that “[i]n the former case, it would be necessary to separately analyze the generic data to determine if the patient is male or female to determine whether the structured document complies with best practices for the patient’s gender.” *Id.* According to Dr. Sears, gender determination

“would not necessarily occur before the template is selected since it would not be relevant for all possible scenarios” and instead “would only occur after it was determined that there were best practices associated with the patient’s gender, which may not be known until after the template was selected and additional information was entered.” *Id.*

We agree with Petitioner that Carus teaches claim 6’s subject matter. Carus discloses retrieving multiple templates in succession based on the input audio data. Ex. 1006 ¶¶ 40, 43; *see* Ex. 1003, A12–A13; Ex. 1025 ¶ 25. Patent Owner admits that Carus “further analyzes generic data to fetch other templates as appropriate.” Sur-reply 22.

In particular, after discussing the example where the system retrieves a JCAHO-based template for surgical infection prevention, Carus explains that a “user may continue to input data into the system.” Ex. 1006 ¶¶ 39–40. If the user does so, the system “review[s] additional portions of generic data contemporaneously to determine if there are any more templates that need to be presented” to the user. *Id.* ¶ 40. The additional template may be a Medicare form. *See id.* ¶¶ 10, 40; Ex. 1003, A12–A13.

Determining an additional template after initially retrieving another template, e.g., a JCAHO-based template, corresponds to “identifying a type of the structured document” according to claim 6. Dr. Sears discussed an example of determining an additional gender template after initially retrieving another template, i.e., a surgical-procedure template. Ex. 1025 ¶ 25. In essence, the later-determined template tailors the initially retrieved template and produces a specific report “type” from a generic report “type.” *See* Ex. 1006 ¶¶ 10–12, 17, 36, 44, code (57). Thus, Carus teaches “identifying a type of the structured document” according to claim 6.

Further, Carus teaches “identifying a best practice associated with the identified type” according to claim 6 because Carus discloses determining particular codes, e.g., particular CPT-4 or ICD-9-CM codes, for a billing template. Ex. 1006 ¶¶ 10–12, 36, 41, 44, 61, code (57).

In addition, Carus teaches “determining whether the structured document includes an indication of compliance with the identified best practice to produce the conclusion” according to claim 6 for the same reasons that Carus teaches “determining” according to claim 1 step (B). *See* Ex. 1003, A6–A8, A26; Ex. 1025 ¶ 26; *supra* § III.D.2(c). Also, Carus explains that “[a]fter a determination has been made that the user has addressed all of the templates, and all of the template-specific data has been received,” the template-specific data and the generic data are “further processed.” Ex. 1006 ¶ 43; *see id.* ¶ 36, code (57); *see* Sur-reply 14 (quoting Ex. 1006 ¶ 43). Thus, Carus discloses determining data completeness to permit further processing. *See* Ex. 1006 ¶ 43. Determining data completeness to permit further processing produces a conclusion based on “the presence of information” or “the absence of information” in the structured document. *See* Ex. 1001, 5:15–27.

In the Sur-reply, Patent Owner asserts that the Reply includes the following untimely new argument: “Carus ‘renders obvious’ separately determining the type of the template ‘by analyzing the generic data’ to, for example, determine if the template complies with gender-specific best practices.” Sur-reply 21–22 (quoting Reply 17–18).

We disagree that Petitioner’s argument is new or untimely. In the Petition and the Reply, Petitioner relies on the same disclosure from the same reference to support the same legal argument. *Compare* Pet. 32–33

(citing Ex. 1006 ¶¶ 10, 39), *and* Ex. 1003, A23–A24 (citing Ex. 1006 ¶¶ 7, 10, 39, 50), *with* Reply 17–18 (citing Ex. 1003, A23–A24). In the Reply, Petitioner provides a further explanation why that evidence demonstrates unpatentability. Petitioner’s explanation does not amount to a new theory of unpatentability. *See Apple Inc. v. Andrea Elecs. Corp.*, 949 F.3d 697, 706 (Fed. Cir. 2020).

In addition, “the petitioner in an inter partes review proceeding may introduce new evidence after the petition stage if the evidence is a legitimate reply to evidence introduced by the patent owner.” *Anacor Pharm., Inc. v. Iancu*, 889 F.3d 1372, 1380–81 (Fed. Cir. 2018). Here, Dr. Sears’s explanation about determining an appropriate gender template replies to Dr. Cohen’s allegations about deficiencies in Carus’s disclosure. *Compare* Ex. 2003 ¶¶ 151–156 (citing Ex. 1006 ¶¶ 35, 38–39), *with* Ex. 1025 ¶ 25, *and* Ex. 1003, A23–A26 (citing Ex. 1006 ¶¶ 7, 10, 39, 50).

For the reasons discussed above, Petitioner has shown by a preponderance of the evidence that claim 6 is unpatentable under § 103(a) as obvious over Carus in view of an ordinarily skilled artisan’s knowledge.

6. DEPENDENT CLAIM 12

Claim 12 depends from claim 1 and recites “generating a prompt for additional input, based on the conclusion, the prompt rendered separately from a rendering of the structured document.” Ex. 1001, 13:64–67.

Petitioner contends that claim 12’s subject matter would have been obvious over Carus in view of an ordinarily skilled artisan’s knowledge. Pet. 34; *see* Ex. 1003, A27–A29. Specifically, Petitioner asserts that Carus teaches “generating a prompt for additional input” according to claim 12 for

the same reasons that Carus teaches claim 1 steps (D) and (E). Pet. 34; *see* Ex. 1003, A9–A13, A27.

Petitioner admits that Carus “does not explicitly disclose that the generated prompt is rendered separately from the rendering of the structured document.” Pet. 34; *see* Ex. 1003, A27. But Petitioner asserts that an ordinarily skilled artisan would have understood “that there were only two possible options for rendering the prompt,” i.e., “within the document itself, or separately from the document.” Pet. 34; *see* Ex. 1003, A28. Petitioner argues that the “idea of generating the prompt *separately* from the document itself would have been well known to” an ordinarily skilled artisan because “[r]endering a prompt for information is a generic concept that is ubiquitous in human user interfaces.” Pet. 34 (emphasis by Petitioner); *see* Ex. 1003, A27–A28; *see also* Ex. 1013, 129–30 (describing “ubiquitous dialog boxes containing radio buttons, check boxes, text-entry fields, and scrollable lists of choices”); Ex. 1014, 130–31 (discussing dialog boxes).

To support Petitioner, Dr. Sears stated that an ordinarily skilled artisan would have understood two “advantages of rendering the prompt separately” from a rendering of the structured document. Ex. 1003, A28. First, rendering a prompt separately “increase[s] the likelihood of the user noticing and addressing the prompt, which in turn assists the user in preparing a complete and accurate report.” *Id.* at A28–A29. Second, rendering a prompt separately “reduce[s] clutter within the document, making it easier for the user to view and address the prompt without disrupting the content within the structured document.” *Id.* at A29; *see id.* at A31.

In response, Patent Owner asserts that Petitioner “recognizes that the only prompts that Carus displays are its templates.” Resp. 44–45 (citing

Pet. 34); *see* Sur-reply 21 (citing Reply 16); Ex. 2003 ¶ 163. Patent Owner contends that Petitioner “never explained why it would be advantageous to display two prompts—the template *and* a separate prompt.” Resp. 45 (emphasis by Patent Owner).

We agree with Petitioner that claim 12’s subject matter would have been obvious over Carus in view of an ordinarily skilled artisan’s knowledge. *See* Ex. 1003, A27–A29, A31. Carus teaches “generating a prompt for additional input” according to claim 12 for the same reasons that Carus teaches claim 1 steps (D) and (E). *See* Ex. 1003, A9–A13, A27; Ex. 1006 ¶¶ 14, 39, 48, 52; *supra* § III.D.2(e).

Further, for the reasons stated by Dr. Sears, an ordinarily skilled artisan would have been motivated to modify Carus to render a prompt separately from a rendering of the structured document. *See* Ex. 1003, A27–A29, A31. Carus discloses pop-up windows for obtaining user input, such as user-selected billing codes. *See* Ex. 1006 ¶¶ 57–59. Dr. Sears stated that an ordinarily skilled artisan would have “known to use a dialog box to render a prompt separately from the document.” Ex. 1003, A31; *see id.* at A27–A28 (citing Ex. 1013, 129–30; Ex. 1014, 130–31). The ’829 patent identifies windows and dialog boxes as examples of prompts. Ex. 1001, 7:62–66; *see id.* at 9:32–37; Ex. 1003, A27 (quoting Ex. 1001, 7:62–64). Specifically, the ’829 patent explains that “a prompt (such as a window or a dialog box) that is distinct from the rendering of the report itself may be displayed to the user to prompt the user to provide input.” Ex. 1001, 7:62–66.

In addition, an ordinarily skilled artisan would have understood “that only two options existed for prompting the user,” i.e., provide a prompt

“within the document itself, or separately from the document.” Ex. 1003, A28. The existence of “two known, finite, predictable solutions for solving” the problem of soliciting user input supports a conclusion of obviousness. *See Uber Techs., Inc. v. X One, Inc.*, 957 F.3d 1334, 1341 (Fed. Cir. 2020).

For the reasons discussed above, Petitioner has shown by a preponderance of the evidence that claim 12 is unpatentable under § 103(a) as obvious over Carus in view of an ordinarily skilled artisan’s knowledge.

7. DEPENDENT CLAIM 13

Claim 13 depends from claim 12 and recites the following steps: “receiving input representing the content” and “removing the rendered prompt.” Ex. 1001, 14:1–3.

Petitioner contends that claim 13’s subject matter would have been obvious over Carus in view of an ordinarily skilled artisan’s knowledge. Pet. 35; *see* Ex. 1003, A30–A31. Specifically, Petitioner asserts that Carus teaches “receiving input representing the content” according to claim 13 for the same reasons that Carus teaches “inserting” content according to claim 1 step (C). Pet. 35; *see* Ex. 1003, A14–A15, A30. Petitioner admits that Carus “does not explicitly disclose removing the rendered prompt.” Pet. 35. But Petitioner asserts that an ordinarily skilled artisan would have understood “that the disclosed prompts would be removed after the requested information was provided by the user.” *Id.*; *see* Ex. 1003, A31.

To support Petitioner, Dr. Sears stated that an ordinarily skilled artisan would have understood “that any prompts presented to the user in Carus would be removed after they had been addressed by the user.” Ex. 1003, A31. As a reason for removing a prompt, he stated that retaining a prompt

“after it has been addressed increases the risk of confusing the user and unnecessarily prompting the user to provide duplicative information.” *Id.*

Patent Owner makes the same patentability arguments for claim 13 as for claim 12. *See* Resp. 44–45; Sur-reply 22.

We agree with Petitioner that claim 13’s subject matter would have been obvious over Carus in view of an ordinarily skilled artisan’s knowledge. *See* Ex. 1003, A14–A15, A30–A31. Carus teaches “receiving” content according to claim 13 for the same reasons that Carus teaches “inserting” content according to claim 1 step (C). *See* Ex. 1003, A14–A15, A30; Ex. 1006 ¶¶ 16, 39–40; *supra* § III.D.2(d). Further, for the reasons stated by Dr. Sears, an ordinarily skilled artisan would have been motivated to modify Carus to remove a prompt after a user provides input. *See* Ex. 1003, A31.

For the reasons discussed above, Petitioner has shown by a preponderance of the evidence that claim 13 is unpatentable under § 103(a) as obvious over Carus in view of an ordinarily skilled artisan’s knowledge.

8. DEPENDENT CLAIM 25

Claim 25 depends from claim 4 and recites “displaying a label with the form field to guide the user in providing input.” Ex. 1001, 14:46–47.

Petitioner contends that claim 25’s subject matter would have been obvious over Carus in view of an ordinarily skilled artisan’s knowledge. Pet. 36; *see* Ex. 1003, A33. Specifically, Petitioner asserts that Carus “discloses that ‘[t]raditional input methods may include . . . those used in database applications involving fielded input forms consisting of input fields, check boxes, radio buttons, text boxes, and other graphical input objects.’” Pet. 36 (alteration by Petitioner) (quoting Ex. 1006 ¶ 15); *see*

Ex. 1003, A33. Petitioner also asserts that an ordinarily skilled artisan would have understood “this disclosure to include a label that is displayed with the form field to guide user input” because “simply provid[ing] an input field or a text box on its own, without any indication of what information to supply within the field,” would be unhelpful. Pet. 36; *see* Ex. 1003, A33.

To support Petitioner, Dr. Sears stated that an ordinarily skilled artisan would have understood that Carus’s graphical input objects employed “labels to guide the user in providing the desired input.” Ex. 1003, A33. He explained that “a text box or radio button on its own, without any label, would fail to indicate any meaning to the user regarding what data to input.” *Id.* (citing Ex. 1013, 103).

Patent Owner makes the same patentability arguments for claim 25 as for claims 3, 4, and 21. *See* Resp. 43–44.

We agree with Petitioner that claim 25’s subject matter would have been obvious over Carus in view of an ordinarily skilled artisan’s knowledge. *See* Ex. 1003, A33; *see also* Ex. 1013, 103 (depicting example radio buttons and a label for each button). An ordinarily skilled artisan would have understood that Carus’s graphical input objects employed “labels to guide the user in providing the desired input” because unlabeled objects would fail to indicate what data to input. Ex. 1003, A33.

For the reasons discussed above, Petitioner has shown by a preponderance of the evidence that claim 25 is unpatentable under § 103(a) as obvious over Carus in view of an ordinarily skilled artisan’s knowledge.

9. DEPENDENT CLAIM 26

Claim 26 depends from claim 1 and specifies that step (A) comprises “applying automatic speech recognition to a first portion of the audio signal

to produce a structured document representing contents of the first portion of the audio signal, during generation of a second portion of the audio signal.”
Ex. 1001, 14:48–52.

Petitioner contends that Carus teaches claim 26’s subject matter because Carus teaches claim 1 step (A) and because Carus discloses applying ASR “contemporaneously” to additional input audio data, i.e., “a second portion of the audio signal.” Pet. 36–37; *see* Ex. 1003, A34–A35. To support that contention, Petitioner quotes Carus’s explanation that a “user may continue to input data into the system,” and it “review[s] additional portions of generic data contemporaneously to determine if there are any more templates that need to be presented” to the user. Pet. 37 (quoting Ex. 1006 ¶ 40); *see* Ex. 1003, A34. Petitioner asserts that an ordinarily skilled artisan would have understood “this to mean that while the system is applying ASR to portions of the user’s speech to extract relevant data, the user may continue to input speech for processing (*i.e.*, generation of a second portion of the audio signal).” Pet. 37; *see* Ex. 1003, A34.

To support Petitioner, Dr. Sears stated that claim 26 “represents a basic and long-existing functionality of automatic speech recognition software” to “analyze an input stream while a user continues to input additional speech data.” Ex. 1003, A34; *see id.* ¶ 18.

Patent Owner does not make any arguments specific to claim 26. *See, e.g.*, Resp. 39–45; Sur-reply 21–22.

We agree with Petitioner that Carus teaches claim 26’s subject matter. Carus teaches “applying automatic speech recognition to a first portion of the audio signal to produce a structured document representing contents of the first portion of the audio signal” according to claim 26 for the same

reasons that Carus teaches “applying” ASR according to claim 1 step (A). *See* Ex. 1003, A2–A5; *supra* § III.D.2(b). In addition, as Petitioner notes, Carus explains that a “user may continue to input data into the system,” and it “review[s] additional portions of generic data contemporaneously to determine if there are any more templates that need to be presented” to the user. Ex. 1006 ¶ 40; *see* Pet. 37. The “additional portions of generic data contemporaneously” reviewed by the system correspond to “a second portion of the audio signal” generated while processing “a first portion of the audio signal” according to claim 26. *See* Ex. 1003, A34.

For the reasons discussed above, Petitioner has shown by a preponderance of the evidence that claim 26 is unpatentable under § 103(a) as obvious over Carus in view of an ordinarily skilled artisan’s knowledge.

*E. Obviousness over Carus in View of an Ordinarily
Skilled Artisan’s Knowledge and Panzarasa:
Claims 12, 13, 18, and 25*

Petitioner challenges claims 12, 13, 18, and 25 under § 103(a) as obvious over Carus in view of an ordinarily skilled artisan’s knowledge and Panzarasa. *See* Pet. 7, 38–50. Above, we provided an overview of Carus. *See supra* § III.D.1. Below, we provide an overview of Panzarasa, and then we consider the obviousness issues raised by the parties.

1. OVERVIEW OF PANZARASA (EX. 1007)

Panzarasa describes efforts to integrate decision-support functionalities for doctors into information systems for stroke patients. Ex. 1007, 141; *see* Ex. 1003 ¶ 50. The decision-support functionalities incorporated clinical-practice guidelines, i.e., “best practices in stroke management.” Ex. 1007, 141–43; *see* Ex. 1003 ¶ 50. The integration efforts

included modifying a graphical user interface for doctors. Ex. 1007, 141, 143 (Fig. 1), 150 (Fig. 8); *see* Ex. 1003 ¶¶ 50–51.

Panzarasa’s Figure 1 (reproduced below) shows the graphical user interface before integrating decision support for doctors. Ex. 1007, 143; *see* Ex. 1003 ¶ 50.

Figure 1 illustrates a “list of forms (bottom left) . . . ordered by name (as in the figure), or by date,” with “no *intelligent* tailoring to the specific patient.” Ex. 1007, 143 (emphasis in original). Figure 1 also illustrates “a series of selection boxes from which a user could input data.” Ex. 1003 ¶ 50.

Panzarasa’s Figure 8 (reproduced below) shows the graphical user interface after integrating decision support for doctors. Ex. 1007, 150; *see* Ex. 1003 ¶ 51.

The screenshot displays a medical software interface with several components:

- (A) Patient Details:**
 - Patient Id: 88888
 - Patient Name: Test
 - OB: 07/1935 Age: 74
 - Room: 7777
 - Gender: F
 - Hospitalization ID: 7777777
 - Messages (10/1New) (B)
 - Order by Date
 - Alphabetic Order
 - To-do List
- (B) Messages:** A list of messages, including "CHECK FOR R-TPA (a)", "RECENT CLINICAL HISTORY", "PHYSIOLOGICAL HISTORY", "PAST HISTORY", "OBJECTIVE EXAMINATION (d)", "NIH STROKE SCALE (d)", "CARDIOLOGIC DIAGNOSIS (d)", "RANKIN SCALE", and "NEURORADIOLOGY DIAGN".
- (C) New Messages to Read:** 3 - Read Messages: 30
- (D) Test Test:** A section for testing or evaluation.
- (E) RoMA Report:**
 - Eligible for Recommendations:**

R 9.1	An early and standardised neurological evaluation is recommended in the setting of a qualitatively adequate management of stroke or TIA. (GPP)
R 10.5	Aspirin (160-300 mg per day) is recommended in all patients with acute stroke unless anticoagulant therapy or thrombolysis are indicated. (a)
R 5.11	In patients who are undergoing cardiovascular surgery, Duplex US examination of supra-aortic vessels is recommended to look for possible carotid artery stenoses. (b)
R 5.15	Transcranial Doppler is a complementary examination in patients with a recent stroke. (d)
R 9.6	The electrocardiogram is recommended in all stroke victims who are admitted to an E. Room. (d)
R 10.7	Anticoagulant therapy with intravenous heparin is recommended for the treatment of venous sinus thrombosis. (d)
R 5.2	The use of CT or MRI is recommended to corroborate differential diagnosis with other pathologies that can mimic TIA or stroke. (c)
R 10.1	Intravenous administration of streptokinase is not recommended. (a)
 - Non-compliances to Recommendations:**

R 10.5	Motivation: Patient related Problems
R 5.11	Insert a Motivation...
R 5.15	Insert a Motivation...
R 9.6	Motivation: Resource unavailable
- (F) Message for Patient: Test Test**

Anticoagulant therapy with intravenous heparin **is recommended** because the patient suffers from venous sinus thrombosis (R. 10.7 - Grade D).

Buttons: Accept Recommendation, Deny Recommendation, Cancel

Figure 8 illustrates a “smart form” with patient details in (A), messages “for the actual patient” in (B), messages “for all the active inpatients” in (C), a to-do list in (D), lists of recommendations and non-compliances in (E), and a prompt to accept or deny a particular recommendation in (F). Ex. 1007, 147, 150–51; *see* Ex. 1003 ¶ 51, A36–A37.

Panzarasa explains that a system called RoMA (Reasoning on Medical Actions) runs at discharge, identifies “missing data,” and supplies lists of recommendations and non-compliances. Ex. 1007, 147, 150. Panzarasa also explains that a RoMA report “prompt[s] the users for providing motivations . . . choosing them from a predefined taxonomy.” *Id.* at 150; *see* Ex. 1003 ¶ 52.

2. COMBINING THE TEACHINGS OF CARUS AND PANZARASA

Petitioner argues that an ordinarily skilled artisan “reviewing Carus would have been motivated to review Panzarasa and incorporate its teachings relating to a smart user interface for completing medical records.” Pet. 40; *see* Ex. 1003 ¶¶ 61–63. In particular, Petitioner contends that Carus “stresses the importance of creating accurate and complete medical records” by prompting a user for information but fails to “provide specific details regarding the ways to prompt the user.” Pet. 40–41; *see* Ex. 1003 ¶ 61, A37; Ex. 1006 ¶¶ 14, 39, 48, 52. Consistent with that contention, Carus provides users with “prompts or reminders to collect certain predetermined information and assistance in collecting and classifying” the information required to complete a report. Ex. 1006 ¶¶ 14, 39; *see id.* ¶¶ 7–13, 15, 48, 52.

Petitioner asserts that both Carus and Panzarasa teach “techniques for prompting a user for information based on the contents of a structured document and certain pre-defined best practices.” Pet. 41; *see* Ex. 1003 ¶ 62, A37. Petitioner also asserts that both references seek “to increase the accuracy and efficiency with which health care professionals are able to identify and incorporate these best practices.” Pet. 41; *see* Ex. 1003 ¶ 62. In addition, Petitioner contends that Panzarasa “provides additional useful disclosure on how to prompt the user.” Pet. 41 (emphasis by Petitioner); *see* Ex. 1003 ¶ 62.

Further, Petitioner asserts that an ordinarily skilled artisan “employing the teachings of Carus would have been motivated to review Panzarasa to learn how to prompt a user and to further incorporate Panzarasa’s prompts into Carus’ teachings.” Pet. 42. In addition, Dr. Sears identified

“Panzarasa’s explicit disclosure of a simple end-user interface for reminding a user to provide more information” as a reason to combine the teachings of Carus and Panzarasa. Ex. 1003 ¶ 62.

Patent Owner does not dispute that an ordinarily skilled artisan would have had a reason to combine the teachings of Carus and Panzarasa. *See, e.g.,* Resp. 45–49; Sur-reply 23.

We agree with Petitioner that an ordinarily skilled artisan would have had a reason to combine the teachings of Carus and Panzarasa because Panzarasa provides additional useful disclosure on how to prompt a user for information. *See* Ex. 1003 ¶¶ 62–63. Among other things, Panzarasa discloses:

- (1) “prompting a user in order to remind the user to insert additional information, such as a motivation for why the user declined to adopt a recommended clinical practice guideline”;
- (2) “rendering a prompt to provide additional information, where the prompt is rendered separately from the document itself”;
- (3) “labeling the prompt to provide the user with helpful information regarding the information sought”;
- (4) “removing the rendered prompt once the user has input the requested information”; and
- (5) “inserting a prompt into the document itself to remind the user to provide the missing information.”

Ex. 1003 ¶ 62; Ex. 1007, 150 (Fig. 8); *see* Ex. 1003 ¶ 51. As Dr. Sears stated, “[e]ach of these disclosures would have been relevant and useful to” an ordinarily skilled artisan “interested in learning how to remind a user to provide additional required information.” Ex. 1003 ¶ 62.

3. DEPENDENT CLAIM 12

Claim 12 depends from claim 1 and recites “generating a prompt for additional input, based on the conclusion, the prompt rendered separately from a rendering of the structured document.” Ex. 1001, 13:64–67.

Petitioner contends that claim 12’s subject matter would have been obvious based on the combined teachings of Carus and Panzarasa. Pet. 42–44; *see* Ex. 1003, A36–A37. Specifically, Petitioner asserts that “Panzarasa discloses generating a prompt that is separately rendered from a structured document.” Pet. 42; *see* Ex. 1003, A36–A37. Petitioner supports that assertion with the highlighted version of Panzarasa’s Figure 8 reproduced below (Pet. 43):

(A) Patient Id: 00000, Patient Name: Test, DOB: 07/1935, Age: 74, Room: 7777, Gender: F, Hospitalization ID: 7777777, Messages(10/1New) (B)

(C) New Messages to Read: 3 - Read Messages: 30

(D) Test Test, CHECK FOR R-TPA (a), RECENT CLINICAL HISTORY, PHYSIOLOGICAL HISTORY, PAST HISTORY, OBJECTIVE EXAMINATION (d), NIH STROKE SCALE (d), CARDIOLOGIC DIAGNOSIS (d), RANKIN SCALE, NEURORADIOLOGY DIAGN

(E) RoMA Report

Eligible for Recommendations:	
R 9.1	An early and standardised neurological evaluation is recommended in the setting of a qualitatively adequate management of stroke or TIA. (GPP)
R 10.5	Aspirin (160-300 mg per day) is recommended in all patients with acute stroke unless anticoagulant therapy or thrombolysis is indicated. (a)
R 5.11	In patients who are undergoing cardiovascular surgery, Duplex US examination of supra-aortic vessels is recommended to look for possible carotid artery stenoses. (b)
R 5.15	Transcranial Doppler is a complementary examination in patients with a recent stroke. (d)
R 9.6	The electrocardiogram is recommended in all stroke victims who are admitted to an E. Room. (d)
R 10.7	Anticoagulant therapy with intravenous heparin is recommended for the treatment of venous sinus thrombosis. (d)
R 5.2	The use of CT or MRI is recommended to corroborate differential diagnosis with other pathologies that can mimic TIA or stroke. (c)
R 10.1	Intravenous administration of streptokinase is not recommended. (a)

Non-compliances to Recommendations

R 10.5	Motivation: Patient related Problem
R 5.11	Insert a Motivation...
R 5.15	Insert a Motivation...
R 9.6	Motivation: Resource unavailable

(F) Message for Patient: Test Test

Anticoagulant therapy with intravenous heparin is recommended because the patient suffers from venous sinus thrombosis (R. 10.7 - Grade D).

Accept Recommendation Deny Recommendation Cancel

Figure 8 shows a graphical user interface. Ex. 1007, 150. According to Petitioner, this version of Figure 8’s graphical user interface highlights with yellow a prompt in part (F) to accept or deny a particular recommendation,

i.e., recommendation R 10.7 for anticoagulant therapy with intravenous heparin “because the patient suffers from venous sinus thrombosis.” *See* Ex. 1003, A36–A37; Ex. 1007, 150–51.

To support Petitioner, Dr. Sears explained that Panzarasa’s Figure 8 depicts “a prompt requesting the user to accept or deny a recommendation pertaining to a best practice [that] is rendered separately from the structured document containing information about the best practices.” Ex. 1003, A37.

In addition, Dr. Sears explained that an ordinarily skilled artisan would have been motivated to combine Panzarasa’s teachings to render a prompt separately from a rendering of the structured document with Carus’s teachings for two reasons. First, rendering a prompt separately “increase[s] the likelihood of the user noticing and addressing the prompt” because “the prompt stands out in relation to the structured document,” which “assists the user in preparing a complete and accurate report.” Ex. 1003, A28–A29, A37. Second, rendering a prompt separately “reduce[s] clutter within the document, making it easier for the user to view and address the prompt without disrupting the content within the structured document.” *Id.* at A29; *see id.* at A31, A37.

Patent Owner disputes that claim 12’s subject matter would have been obvious based on the combined teachings of Carus and Panzarasa. *See* Resp. 45–48; Sur-reply 23. In particular, Patent Owner contends that Petitioner “incorrectly alleges without any support or reasoning that Panzarasa uses and displays the claimed structured documents.” Resp. 47. Further, Patent Owner asserts that Dr. Sears “simply states Panzarasa uses structured documents without pointing to anything in particular.” *Id.* at 48 (citing Ex. 1003, A36–A37, A41–A43). According to Patent Owner,

Petitioner’s “conclusory attorney argument and expert testimony are due no weight.” *Id.*

In response, Petitioner explains that “[e]ven if Panzarasa does not disclose a structured document,” Petitioner “does not offer Panzarasa for this purpose.” Reply 20. Petitioner contends that “Carus already discloses a structured document.” *Id.* at 20–21. Further, Petitioner asserts that an ordinarily skilled artisan would have “turned to Panzarasa for its disclosure of generating and removing a prompt (claims 12 and 13), providing an indication that content is missing (claim 18), and displaying a label to guide a user in providing input (claim 25).” *Id.* at 20.

We agree with Petitioner that claim 12’s subject matter would have been obvious based on the combined teachings of Carus and Panzarasa. Carus discloses a structured document, i.e., a template with template-specific data that becomes a report, e.g., a medical report. *See* Ex. 1003, A3–A5; Ex. 1006 ¶¶ 6–12, 16–18, 36, 39–41, 43–44, 50; Ex. 1025 ¶¶ 17–19; *supra* § III.D.2(b). And Panzarasa discloses “generating a prompt for additional input” with “the prompt rendered separately from a rendering of” a medical report. Ex. 1007, 150 (Fig. 8); *see* Ex. 1003, A36–A37. Further, for the reasons explained by Dr. Sears, an ordinarily skilled artisan would have been motivated to modify Carus according to Panzarasa’s teachings to render a prompt separately from a rendering of the structured document. *See* Ex. 1003, A28–A29, A37. Also, as discussed above for the ground based on Carus without Panzarasa, the existence of “two known, finite, predictable solutions for solving” the problem of soliciting user input supports a conclusion of obviousness. *See Uber*, 957 F.3d at 1341; *supra* § III.D.6.

For the reasons discussed above, Petitioner has shown by a preponderance of the evidence that claim 12 is unpatentable under § 103(a) as obvious over Carus in view of an ordinarily skilled artisan's knowledge and Panzarasa.

4. DEPENDENT CLAIM 13

Claim 13 depends from claim 12 and recites the following steps: “receiving input representing the content” and “removing the rendered prompt.” Ex. 1001, 14:1–3.

Petitioner contends that claim 13's subject matter would have been obvious based on the combined teachings of Carus and Panzarasa. Pet. 44–46; *see* Ex. 1003, A38–A40. In particular, Petitioner argues that Carus teaches “receiving input representing the content” according to claim 13 for the same reasons that Carus teaches “inserting” content according to claim 1 step (C). Pet. 44; *see* Ex. 1003, A14–A15, A38. Further, Petitioner asserts that Panzarasa teaches that (1) a user may deny a recommendation and (2) a prompt associated with a denied recommendation no longer appears because it was “removed after a user made a selection.” Pet. 44–45; *see* Ex. 1003, A39–A40. Petitioner supports that assertion with the highlighted version of Panzarasa's Figure 8 reproduced below (Pet. 45):

(A) Patient Information:
Patient Id: 00000
Patient Name: Test
DOB: 07/1935 Age: 74
Room: 7777
Gender: F
Hospitalization ID: 777777
Messages(10/1New) (B)

(D) Test Test:
CHECK FOR R-TPA (a)
RECENT CLINICAL HISTORY
PHYSIOLOGICAL HISTORY
PAST HISTORY
OBJECTIVE EXAMINATION (d)
NIH STROKE SCALE (d)
CARDIOLOGIC DIAGNOSIS (d)
RANKIN SCALE
NEUROIMAGERY DIAGN

(E) RoMA Report

Eligible for Recommendations:	
R 9.1	An early and standardised neurological evaluation is recommended in the setting of a qualitatively adequate management of stroke or TIA. (GPP)
R 10.5	Aspirin (160-300 mg per day) is recommended in all patients with acute stroke unless anticoagulant therapy or thrombolysis are indicated. (a)
R 5.11	In patients who are undergoing cardiovascular surgery, Duplex US examination of supra-aortic vessels is recommended to look for possible carotid artery stenoses. (b)
R 5.15	Transcranial Doppler is a complementary examination in patients with a recent stroke. (d)
R 9.6	The electrocardiogram is recommended in all stroke victims who are admitted to an E. Room. (d)
R 10.7	Anticoagulant therapy with intravenous heparin is recommended for the treatment of venous sinus thrombosis. (d)
R 5.2	The use of CT or MRI is recommended to corroborate differential diagnosis with other pathologies that can mimic TIA or stroke. (c)
R 10.1	Intravenous administration of streptokinase is not recommended. (a)
Non-compliances to Recommendations	
R 10.5	Motivation: Patient related Problems
R 5.11	Insert a Motivation...
R 5.15	Insert a Motivation...
R 9.6	Motivation: Resource unavailable

(F) Message for Patient: Test Test
Anticoagulant therapy with intravenous heparin is recommended because the patient suffers from venous sinus thrombosis (R. 10.7 - Grade D).
Accept Recommendation Deny Recommendation Cancel

Figure 8 shows a graphical user interface. Ex. 1007, 150. According to Petitioner, this version of Figure 8’s graphical user interface highlights with blue and yellow the rows in part (E) for non-compliances, i.e., recommendations that a user has denied. *See* Ex. 1003, A39–A40; Ex. 1007, 150–51. In particular, according to Petitioner, blue highlighting denotes the rows for denied recommendations R 10.5 and R 9.6 that include a user-inserted reason or motivation for the denial, and yellow highlighting denotes the rows for denied recommendations R 5.11 and R 5.15 that include the words “Insert a Motivation.” *See* Ex. 1003, A39.

To support Petitioner, Dr. Sears stated that Panzarasa’s Figure 8 “reveals that four compliance recommendations have been made to the user (R 10.5, R 5.11, R 5.15, and R 9.6).” Ex. 1003, A40. He also stated that “none of their associated prompts are visible to the user” because “only the current prompt related to [recommendation] R 10.7 and venous sinus

thrombosis is rendered for the user.” *Id.* According to Dr. Sears, “[t]his indicates that the other prompts were removed after the user made the required selection to input the requested information.” *Id.*

In addition, Dr. Sears explained that an ordinarily skilled artisan would have been motivated to combine Panzarasa’s teachings to remove a prompt after a user provides input with Carus’s teachings for two reasons. First, if prompts were not removed, “the graphical user interface could become cluttered and the user could become confused about whether he or she had already provided the requested information.” Ex. 1003, A40; *see id.* at A31. Second, “there is no reason to keep prompting the user for the same information” after “the requested information has been supplied.” *Id.* at A40; *see id.* at A31.

Patent Owner makes the same patentability arguments for claim 13 as for claim 12. *See* Resp. 45–48; Sur-reply 23.

We agree with Petitioner that claim 13’s subject matter would have been obvious based on the combined teachings of Carus and Panzarasa. Carus teaches “receiving” content according to claim 13 for the same reasons that Carus teaches “inserting” content according to claim 1 step (C). *See* Ex. 1003, A14–A15, A30, A38; *supra* § III.D.2(d). And Panzarasa teaches removing a prompt after a user provides input. *See* Ex. 1003, A39–A40; Ex. 1007, 150 (Fig. 8). As Dr. Sears stated, Figure 8 “reveals that four compliance recommendations have been made to the user” but “none of their associated prompts are visible to the user” because “only the current prompt related to [recommendation] R 10.7 . . . is rendered for the user.” Ex. 1003, A40.

Further, for the reasons explained by Dr. Sears, an ordinarily skilled artisan would have been motivated to modify Carus according to Panzarasa's teachings to remove a prompt after a user provides input. *See* Ex. 1003, A31, A40.

For the reasons discussed above, Petitioner has shown by a preponderance of the evidence that claim 13 is unpatentable under § 103(a) as obvious over Carus in view of an ordinarily skilled artisan's knowledge and Panzarasa.

5. DEPENDENT CLAIM 18

Claim 18 depends from claim 1 and specifies that step (C) comprises "inserting, into the structured document, an indication that the content is missing." Ex. 1001, 14:22–24.

Petitioner contends that claim 18's subject matter would have been obvious based on the combined teachings of Carus and Panzarasa. Pet. 46–48; *see* Ex. 1003, A41–A43. Specifically, Petitioner asserts that "Panzarasa discloses inserting an indication notifying a user to supply a motivation for the user's decision to deny a recommended best practice." Pet. 46–47; *see* Ex. 1003, A41. Petitioner supports that assertion with the highlighted version of Panzarasa's Figure 8 reproduced below (Pet. 47):

(A) Patient Information

Patient Id: 88888
Patient Name: Test Test
DOB: 07/1935 Age: 74
Room: 7777
Gender: F
Hospitalization ID: 7777777
Messages: (10/1New) (B)

(B) Messages

Order by Date
Alphabetic Order
To-do List

(C) New Messages to Read: 3 - Read Messages: 30

(D) Test Test

- CHECK FOR R-TPA (a)
- RECENT CLINICAL HISTORY
- PHYSIOLOGICAL HISTORY
- PAST HISTORY
- OBJECTIVE EXAMINATION (d)
- NIH STROKE SCALE (d)
- CARDIOLOGIC DIAGNOSIS (d)
- RANKIN SCALE
- NEURORADIOLOGY DIAGN

(E) RoMA Report

Eligible for Recommendations:	
R 9.1	An early and standardized neurological evaluation is recommended in the setting of a qualitatively adequate management of stroke or TIA. (GPP)
R 10.5	Aspirin (160-300 mg per day) is recommended in all patients with acute stroke unless anticoagulant therapy or thrombolysis is indicated. (a)
R 5.11	In patients who are undergoing cardiovascular surgery, Duplex US examination of supra-aortic vessels is recommended to look for possible carotid artery stenoses. (b)
R 5.15	Transcranial Doppler is a complementary examination in patients with a recent stroke. (d)
R 9.6	The electrocardiogram is recommended in all stroke victims who are admitted to an E. Room. (d)
R 10.7	Anticoagulant therapy with intravenous heparin is recommended for the treatment of venous sinus thrombosis. (d)
R 5.2	The use of CT or MRI is recommended to corroborate differential diagnosis with other pathologies that can mimic TIA or stroke. (c)
R 10.1	Intravenous administration of streptokinase is not recommended. (a)

Non-compliances to Recommendations	
R 10.5	Motivation: Patient related Problems
R 5.11	Insert a Motivation...
R 5.15	Insert a Motivation...
R 9.6	Motivation: Resource unavailable

(F) Message for Patient: Test Test

Anticoagulant therapy with intravenous heparin is recommended because the patient suffers from venous sinus thrombosis (R. 10.7 - Grade D).

Accept Recommendation Deny Recommendation Cancel

Figure 8 shows a graphical user interface. Ex. 1007, 150. According to Petitioner, this version of Figure 8’s graphical user interface highlights with yellow the rows in part (E) for non-compliances, i.e., recommendations that a user has denied, that include the words “Insert a Motivation.” See Ex. 1003, A42–A43; Ex. 1007, 150–51.

To support Petitioner, Dr. Sears described the words “Insert a Motivation” as a prompt that is inserted “when a user chooses to deny a recommended best practice that is suggested to the user.” Ex. 1003, A42. He stated that an ordinarily skilled artisan “reviewing Panzarasa would have understood that a similar prompt could be utilized in connection with Carus’ disclosure of prompting a user for missing information.” *Id.* In addition, Dr. Sears noted that “Carus discloses the use of numerous form fields for inputting data, including text boxes.” *Id.* at A42–A43; *see id.* at A22 (citing Ex. 1006 ¶ 15). He stated that an ordinarily skilled artisan “reviewing Carus

would have understood that this form field [text box] could be used in connection with Panzarasa’s disclosure relating to inserting a prompt for missing information directly within the structured document.” *Id.* at A43; *see id.* at A19–A22.

Also, Dr. Sears explained that an ordinarily skilled artisan would have been motivated to combine Panzarasa’s teachings to insert a prompt for missing content with Carus’s teachings “to ensure that patient records are both complete and accurate.” Ex. 1003 ¶¶ 61–62; *see id.* at A28–A29.

Patent Owner disputes that claim 18’s subject matter would have been obvious based on the combined teachings of Carus and Panzarasa. *See* Resp. 48–49; Sur-reply 23. Specifically, Patent Owner asserts that claim 18 requires inserting an indication “into the structured document,” whereas Panzarasa inserts an indication “into *a rendering of* the structured document, *i.e.*, the human-readable text displayed to the user as opposed to the machine-readable structured document itself.” Resp. 48 (emphasis by Patent Owner). In addition, Patent Owner contends that Petitioner “never explained how a ‘text box,’ which is a user-interface element displayed to the user, could be and would be inserted into a machine-readable structured document or how [the] alleged structured documents (*e.g.*, Carus’s template) could be and would be integrated into Panzarasa and accept a text box.” *Id.* at 49; *see* Sur-reply 23.

We agree with Petitioner that claim 18’s subject matter would have been obvious based on the combined teachings of Carus and Panzarasa. Carus discloses a structured document, *i.e.*, a template with template-specific data that becomes a report, *e.g.*, a medical report. *See* Ex. 1003, A3–A5; Ex. 1006 ¶¶ 6–12, 16–18, 36, 39–41, 43–44, 50; Ex. 1025 ¶¶ 17–19; *supra*

§ III.D.2(b). And Panzarasa discloses inserting a prompt for missing content into a medical report. *See* Ex. 1003, A41–A43; Ex. 1007, 150 (Fig. 8). Further, for the reasons explained by Dr. Sears, an ordinarily skilled artisan would have been motivated to modify Carus according to Panzarasa’s teachings to insert a prompt for missing content into a structured document. *See* Ex. 1003 ¶¶ 61–62, A28–A29.

As for Patent Owner’s assertion that Panzarasa inserts an indication “into a *rendering* of the structured document, *i.e.*, the human-readable text displayed to the user,” we conclude above that a “structured document” does not exclude documents intended for user review. *See supra* § III.C.3(a); Resp. 48. In addition, Patent Owner concedes that the structured document “is actually more than what is displayed.” Resp. 55. Because the structured document “is actually more than what is displayed,” inserting something into “what is displayed” also inserts something into the structured document. Hence, inserting “an indication” about missing content into a rendering of the structured document equates to inserting “an indication” about missing content into the structured document itself.

As for Patent Owner’s contention concerning a problem integrating the teachings of Carus and Panzarasa relating to a text box, Carus already discloses a text box for data entry. Ex. 1006 ¶ 15; *see* Ex. 1003, A19, A21, A33, A42–A43. As Dr. Sears stated, an ordinarily skilled artisan “would have understood that this form field [text box] could be used in connection with Panzarasa’s disclosure relating to inserting a prompt for missing information directly within the structured document.” Ex. 1003, A43.

For the reasons discussed above, Petitioner has shown by a preponderance of the evidence that claim 18 is unpatentable under § 103(a)

as obvious over Carus in view of an ordinarily skilled artisan's knowledge and Panzarasa.

6. DEPENDENT CLAIM 25

Claim 25 depends from claim 4 and recites “displaying a label with the form field to guide the user in providing input.” Ex. 1001, 14:46–47.

Petitioner contends that claim 25's subject matter would have been obvious based on the combined teachings of Carus and Panzarasa.

Pet. 48–50; *see* Ex. 1003, A44–A46. Specifically, Petitioner asserts that “Panzarasa discloses multiple different labels for guiding a user's input.” Pet. 48; *see* Ex. 1003, A44. Petitioner supports that assertion with the highlighted version of Panzarasa's Figure 8 reproduced below (Pet. 49):

The screenshot displays a medical software interface. At the top, a navigation bar includes 'Inpatient', 'Reports', and 'Compare patient at home' tabs. A status bar at the top right indicates 'New Messages to Read: 3 - Read Messages: 30'. On the left, a patient information panel (A) lists details for Patient ID 88888, Patient Name Test, DOB 07/1935, Age 74, Room 7777, Gender F, and Hospitalization ID 777777. Below this is a 'Test Test' panel (D) with a list of tests including 'CHECK FOR R-TPA (a)', 'RECENT CLINICAL HISTORY', 'PHYSIOLOGICAL HISTORY', 'PAST HISTORY', 'OBJECTIVE EXAMINATION (d)', 'NIH STROKE SCALE (d)', 'CARDIOLOGIC DIAGNOSES (d)', 'RANKIN SCALE', and 'NEURORADIOLOGY DIAGN'. The main content area (E) is titled 'RoMA Report' and contains a table of recommendations. The table is divided into 'Eligible for Recommendations' and 'Non-compliances to Recommendations'. The 'Eligible' section lists recommendations R 9.1 through R 10.1, each with a brief description. The 'Non-compliances' section lists items R 10.5, R 5.11, R 5.15, and R 9.6, each with a 'Motivation' field. A 'Message for Patient: Test Test' dialog box (F) is open at the bottom, displaying a recommendation: 'Anticoagulant therapy with intravenous heparin is recommended because the patient suffers from venous sinus thrombosis (R. 10.7 - Grade D)'. The dialog box has 'Accept Recommendation', 'Deny Recommendation', and 'Cancel' buttons.

Figure 8 shows a graphical user interface. Ex. 1007, 150. According to Petitioner, this version of Figure 8's graphical user interface highlights with yellow certain labels in part (E) for recommendations and non-compliances,

i.e., the labels R 5.11, R 5.15, R 9.6, and R 10.5 on the left side of certain rows. *See* Ex. 1003, A44–A45; Ex. 1007, 150–51. In addition, according to Petitioner, this version highlights with orange the form fields in part (E) where a user was prompted to provide a reason or motivation for denying a recommendation and highlights with purple the words “Insert a Motivation” in those form fields. *See* Ex. 1003, A44–A45.

To support Petitioner, Dr. Sears explained that label R 10.5 “indicates that the best practice regarding supplying aspirin to patients with acute stroke was denied because of ‘patient-related problems’” and that label R 5.11 “indicates that the recommendation regarding examination of supra-aortic vessels was denied and that a user should insert a motivation for the denial.” Ex. 1003, A45. He also explained that “[t]hese labels help inform the user which recommendations they need to supply a motivation for in response to the system’s prompt to explain why the user denied the recommended best practice.” *Id.*

In addition, Dr. Sears identified labels for certain form fields in part (A), e.g., patient ID, patient name, and gender, that “explain what their associated fields represent.” Ex. 1003, A46; *see* Ex. 1007, 150 (Fig. 8).

Dr. Sears stated that an ordinarily skilled artisan “reviewing Panzarasa would have immediately recognized the benefits in incorporating labels into the Carus’ disclosure to help assist users with providing the requested feedback in response to prompts and reminders disclosed by Carus.” Ex. 1003, A46; *see id.* at A33. He explained that “a text box or radio button on its own, without any label, would fail to indicate any meaning to the user regarding what data to input.” *Id.* at A33 (citing Ex. 1013, 103).

Patent Owner makes the same patentability arguments for claim 25 as for claims 12 and 13. *See* Resp. 45–48; Sur-reply 23.

We agree with Petitioner that claim 25’s subject matter would have been obvious based on the combined teachings of Carus and Panzarasa. Panzarasa’s Figure 8 illustrates several labels, including labels for form fields, e.g., the labels R 5.11, R 5.15, R 9.6, and R 10.5. Ex. 1003, A44–A46; Ex. 1007, 150 (Fig. 8). Further, for the reasons explained by Dr. Sears, an ordinarily skilled artisan would have been motivated to modify Carus according to Panzarasa’s teachings to display a label for a form field to guide a user in providing input. *See* Ex. 1003, A33, A46.

For the reasons discussed above, Petitioner has shown by a preponderance of the evidence that claim 25 is unpatentable under § 103(a) as obvious over Carus in view of an ordinarily skilled artisan’s knowledge and Panzarasa.

*F. Obviousness over Soble in View of an
Ordinarily Skilled Artisan’s Knowledge:
Claims 1, 4, 6, 12, 13, 18, 21, 25, and 26*

Petitioner challenges claims 1, 4, 6, 12, 13, 18, 21, 25, and 26 under § 103(a) as obvious over Soble in view of an ordinarily skilled artisan’s knowledge. *See* Pet. 7–8, 50–73. Below, we provide an overview of Soble, and then we consider the obviousness issues raised by the parties.

1. OVERVIEW OF SOBLE (EX. 1008)

Soble discloses a system “for preparing reports, such as medical reports,” that “can verbalize information, using speech synthesis (text-to-speech), to support a dialogue between a user and the reporting system during the course of the preparation of the report in order that the user can avoid inefficient visual distractions.” Ex. 1008, code (57); *see id.* ¶¶ 1, 22,

31, 34, 43–45, 61. The system “permits a user to create a report by submitting information to the system in the form of one or more user inputs through the use of a user input device.” *Id.* ¶ 24. The user input device may comprise “a keyboard, mouse, touch screen, keypad, microphone, dictation device, or speech recognition mechanism.” *Id.*; *see id.* ¶¶ 31, 36, 40–42, 50, 62–63, 66, 74, 79, 117, 139.

When the system employs speech recognition, the user may input information with “free-form statements,” “fixed-form statements,” and “mixed-form statements,” i.e., a combination of free-form and fixed-form speech. Ex. 1008 ¶ 32. “Free-form statements include . . . narrative speech such as comments, observations, and interpretations to name a few.” *Id.* “Fixed-form statements include pre-defined speech such as commands and user acknowledgements.” *Id.*

To facilitate report preparation, the system employs macros and macro templates. Ex. 1008 ¶¶ 12–14, 26–28, 36, 44–46, 66–67, 99–100, 109, Fig. 1. A macro is “a text string identified by a name.” *Id.* ¶ 12. A macro template is a macro with “a mix of text strings and placeholders.” *Id.* Placeholders “indicate where the user may—or must—insert additional text.” *Id.* Placeholders include blank slots and pick-list options. *Id.* ¶¶ 13–14, 94–99, Fig. 1. A user may invoke a macro or macro template by saying its name. *Id.* ¶¶ 12–13, 36, 45, 76–77, 79, 89, 99–100, 109.

When receiving user input, the system may provide “prompts that guide the user to enter information,” such as “prompts listing choices requiring a refined selection by the user” and “prompts for additional information that is needed to complete a report, such as strings of text required to complete the options in a macro template.” Ex. 1008 ¶¶ 27, 34;

see id. ¶¶ 82–83, 89, 92, 99–100, 109. For example, the “system can check whether any required content is missing from the report and present spoken prompts for the missing content.” *Id.* ¶ 82. Further, the “system can verbalize” that “a portion of a report is potentially incorrect” or that new data “conflicts with related or conflicting data existing in a prior report or elsewhere in the patient record.” *Id.* ¶¶ 43, 81; *see id.* ¶¶ 22, 27. The system verbalizes through “a voice output device,” such as “a speaker or headset” or “a computer sound card.” *Id.* ¶ 29.

After receiving user input, the “system processes the information according to the instructions received from the user.” Ex. 1008 ¶ 25. The processing may include the following: (1) “specifying a report format,” (2) “entering a narrative statement into the report,” (3) “recording information” in the report, (4) “verifying the report content with respect to standards regarding report completeness,” and (5) “issuing warnings or alerts based on the presence or absence of specific information in the report.” *Id.* ¶ 26. For instance, a warning or alert may result from “problems with the user input” or “incompatibility of the information with either the current report or a previous report.” *Id.* ¶ 27.

2. INDEPENDENT CLAIM 1

(a) Preamble

Claim 1’s preamble recites “[a] computer-implemented method performed by at least one computer processor.” Ex. 1001, 13:5–6.

Petitioner asserts that to the extent the preamble limits the claim, Soble discloses the subject matter of the preamble. Pet. 51–52. To show that Soble discloses that subject matter, Petitioner cites Soble’s claim 1. *Id.*; *see* Ex. 1003, A47. Soble’s claim 1 concerns a “method for a user to create

a report through voice output,” including “receiving information from user input via a user input device,” “processing the information,” and communicating a response “as voice output verbalized through use of a voice output device.” Ex. 1008, claim 1.

Patent Owner does not make any arguments specific to claim 1’s preamble. *See, e.g.*, Resp. 52–66.

Generally, a preamble does not limit a claim. *Allen Eng’g*, 299 F.3d at 1346. Here, we need not decide whether claim 1’s preamble limits the claim because we agree with Petitioner that Soble discloses “[a] computer-implemented method performed by at least one computer processor.” In particular, Soble describes an embodiment where “a computer or other electronic device capable of executing speech recognition software” processes speech input. Ex. 1008 ¶ 31. In addition, Soble identifies “a computer sound card” as a voice output device. *Id.* ¶ 29.

(b) Step (A)

Claim 1 recites “(A) applying automatic speech recognition to an audio signal to produce a structured document representing contents of the audio signal.” Ex. 1001, 13:7–9.

Petitioner asserts that Soble teaches step (A) because Soble discloses a user inputting information “through a speech recognition mechanism” and the system “then parses the input word sequence” for processing. Pet. 52 (quoting Ex. 1008 ¶¶ 63–64); *see* Ex. 1003, A48–A51. Petitioner also asserts that the processing may include (1) “specifying a report format,” including a report format with multiple sections, (2) “entering a narrative statement into the report,” and (3) “recording information” in the report. Pet. 52–53 (quoting Ex. 1008 ¶ 26); *see* Ex. 1003 ¶ 54, A52. Petitioner

further asserts that Soble depicts an illustrative radiology report “that has been organized into sections,” i.e., sections for “clinical history 502; procedure 503; findings 504 (grouped into (sub)sections by anatomy, pathology or subprocedure); comparisons 506; and impressions 507.” Pet. 53–54 (quoting Ex. 1008 ¶ 65); *see* Ex. 1003, A48–A49.

To support those assertions, Petitioner relies on Soble’s Figure 4 (reproduced below):

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St. Elgius Hospital Radiology Services

Name: John Smith
MR#: 123456789
DOB: 01/01/1950

Attending physician: Dr. Jane Doe
Referring physician: Dr. William Jones

Chest CT report
12/10/2007

Clinical history
Indications for study. Pertinent patient diagnoses and symptoms

Procedure
Description of procedure performed, including doses of administered radiation, contrast agents, and medications

Findings
Observations from study grouped into sections based on anatomy (e.g., lungs, liver, etc.), pathology (e.g., mass, lesion, etc.), or subprocedure

Comparisons
Comparison of findings in current study with those in a prior study

Impressions
Diagnoses -- including differential diagnoses. Recommendations for follow-up or additional studies

FIG. 4

Figure 4 “illustrates the content of a radiology report, including organized sections.” Ex. 1008 ¶ 56; *see id.* ¶ 65.

In addition, Petitioner contends that Figure 4’s radiology report “encodes, for example, the concept of the date of birth as the discrete data element ‘01/01/1950.’” Reply 21–22; *see* Ex. 1025 ¶ 13.

To support Petitioner, Dr. Sears stated that in Figure 4’s radiology report “the concept of a birth date is encoded as a discrete data element (the patient’s birthday, January 1, 1950) because of its placement in the report.” Ex. 1025 ¶ 13. He explained that “[b]y positioning the date next to the ‘DOB’ header, the date is encoded as a birthday.” *Id.* He also explained that if “the date was placed under the ‘Chest CT report’ header instead, the date would be encoded as the report date (or date of appointment).” *Id.* According to Dr. Sears, “it is clear to a user that January 1, 1950 and December 10, 2007 are the patient’s date of birth and the date of the report, respectively, because of how the dates are encoded (*e.g.*, placed) in the structured document.” *Id.*

Patent Owner disputes that Soble teaches step (A). *See* Resp. 52–55; Sur-reply 24–25. Specifically, Patent Owner asserts that “Soble simply places text strings in various sections of its reports” and that “[t]hose text strings do not encode any concepts from the user’s speech as discrete data elements.” Resp. 54. Patent Owner similarly asserts that “Soble’s entire report is merely formatted plaintext assembled by filling in the blanks with *any* text, even gibberish” and that “the ’829 patent expressly distinguishes between text and encoded concepts in discrete data elements.” Sur-reply 24 (emphasis by Patent Owner).

We agree with Petitioner that Soble teaches step (A). Soble discloses applying automatic speech recognition to a user’s speech and parsing “the input word sequence” for processing. Ex. 1008 ¶¶ 63–64; *see id.* ¶¶ 23–24, 31–34; Ex. 1003, A48–A51. The processing may include (1) “specifying a report format,” including a report format with multiple sections, (2) “entering a narrative statement into the report,” and (3) “recording

information” in the report. Ex. 1008 ¶ 26; *see id.* ¶¶ 63–64, 82–116, Fig. 3; Ex. 1003 ¶ 54, A52. As an illustrative a report, Soble’s Figure 4 depicts a radiology report “that has been organized into sections,” i.e., sections for “clinical history 502; procedure 503; findings 504 (grouped into (sub)sections by anatomy, pathology or subprocedure); comparisons 506; and impressions 507.” Ex. 1008 ¶ 65, Fig. 4; *see id.* ¶ 56; Ex. 1003, A48–A49. Another illustrative report includes sections for Procedure, Findings (with subsections for Heart, Lungs, and Mediastinum), and Conclusions. Ex. 1008 ¶¶ 101–116; *see* Resp. 57 (citing Ex. 1008 ¶¶ 101–116).

Figure 4’s radiology report is a “structured document,” i.e., a document organized into a structure or particular format that organizes information as discrete data elements. *See* Ex. 1003, A48–A51; Ex. 1025 ¶ 25; *supra* § III.C.3. First, Figure 4’s radiology report is organized into a structure or particular format, i.e., “organized into sections.” Ex. 1008 ¶ 65, Fig. 4; *see id.* ¶ 56; Ex. 1003, A48–A49. The ’829 patent describes “structured elements” of a “structured document” as including “sections.” Ex. 1001, 7:1–6.

Second, Figure 4’s radiology report organizes information as discrete data elements, e.g., dates extracted from a user’s speech. Ex. 1008, Fig. 4; *see id.* ¶¶ 23–24, 31–34, 63–65, Fig. 3; Ex. 1025 ¶ 13. The ’829 patent explains that discrete data elements include “dates, medications, allergies, and diagnoses.” Ex. 1001, 6:60–67; *see* Ex. 1025 ¶ 13. Figure 4’s radiology report includes a birth date as the discrete data element “01/01/1950” and a report date or appointment date as the discrete data element “12/10/2007.” Ex. 1008, Fig. 4; *see* Ex. 1025 ¶ 13. Further, the report formats the dates as

a triplet of values with (1) a two-digit month, (2) a two-digit day, and (3) a four-digit year. Ex. 1008, Fig. 4; *see* Ex. 2005, 7:20–31, 10:60–64 (discussing dates formatted as a triplet of values); Tr. 60:10–61:13 (discussing dates formatted as a triplet of values). Because the report formats the dates as a triplet of values, we disagree with Patent Owner’s assertion that “Soble’s entire report is merely formatted plaintext assembled by filling in the blanks with *any* text, even gibberish.” *See* Sur-reply 24.

In addition, Figure 4’s radiology report “represent[s] contents of the audio signal” as required by step (A). *See* Ex. 1003, A51–A52. For instance, a user may invoke a macro or macro template to specify a report format, e.g., radiology report, or add content to a report by saying the name of the macro or macro template. *See* Ex. 1008 ¶¶ 12–14, 16, 24, 26, 45, 63–65, 76–77, 89–116, Figs. 1, 3; *see also* Ex. 1003 ¶¶ 53–54, A51–A52. Further, a user may add narrative statements to a report by uttering an “input word sequence.” Ex. 1008 ¶¶ 14, 16, 26, 32, 63–66, 109, Figs. 1, 3; *see also* Ex. 1003, A48, A51–A52.

In the Sur-reply, Patent Owner argues that Petitioner “alleges for the first time” in the Reply “that Soble encodes the concept of a birthdate into a discrete data element” in Figure 4’s radiology report. Sur-reply 24. Patent Owner urges the Board to disregard Petitioner’s “untimely argument.” *Id.* at 23–24. But Petitioner’s contentions in the Reply further explain Figure 4’s radiology report, which Petitioner cited in the Petition for step (A). *See* Pet. 53–55; Reply 21–22. “Parties are not barred from elaborating on their arguments on issues previously raised.” *Chamberlain Grp., Inc. v. One World Techs., Inc.*, 944 F.3d 919, 925 (Fed. Cir. 2019).

(c) Step (B)

Claim 1 recites “(B) determining whether the structured document includes an indication of compliance for each of a plurality of best practices to produce a conclusion.” Ex. 1001, 13:10–12.

Petitioner asserts that Soble teaches step (B) because Soble discloses “verifying the report content with respect to standards regarding report completeness” and “issuing warnings or alerts based on the presence or absence of specific information in the report.” Pet. 56–57 (emphasis by Petitioner) (quoting Ex. 1008 ¶ 26); *see* Ex. 1003, A53–A54; Ex. 1025 ¶ 29. Petitioner also asserts that an ordinarily skilled artisan would have understood “the disclosed reporting standards to be best practices.” Pet. 56; *see* Ex. 1003, A53. Petitioner further asserts that “[i]n order to issue an alert that information is present or absent, the system must determine whether the information is contained in the structured document.” Pet. 57; *see* Ex. 1003, A73.

To support Petitioner, Dr. Sears discussed a Soble example where a user says, “Sign report,” and the system responds by saying, “Report is missing the following required sections: Left ventricular function [and] Calcium score.” Ex. 1003, A53 (quoting Ex. 1008 ¶ 82). He explained that this example shows that “the user is unable to sign the report (*i.e.*, finalize the report) without including information regarding left ventricular function and calcium score.” *Id.* at A54. In addition, Dr. Sears stated that an ordinarily skilled artisan would have understood “each of these to represent a best practice.” *Id.*

Dr. Sears also discussed a more-detailed Soble example where the system prompts a user to “enter the missing content” as shown below:

User:	Sign report
System:	Report is missing the following required sections:
System:	Enter left ventricular function [Wait for and process user information]
System:	Enter calcium score [Wait for and process user information]
System:	Required content complete
System:	Sign report?
User:	Yes
System:	Report signed

Ex. 1003, A58 (quoting Ex. 1008 ¶ 83). Dr. Sears explained that in this example “the user is prompted to provide information relating to left ventricular function (*i.e.*, a first best practice) and calcium score (*i.e.*, a second best practice).” *Id.*

Patent Owner disputes that Soble teaches step (B). *See* Resp. 55–62; Sur-reply 25–26. Specifically, Patent Owner asserts that “Soble does not truly check to see if its report is substantively complete” and instead “just checks to see if all of the blanks are filled in with *something*.” Resp. 55–56 (emphasis by Patent Owner); *see id.* at 1–2, 62; Sur-reply 25–26. Patent Owner similarly asserts that Soble “never checks to see if, for example, the entered ‘calcium score’ or ‘left ventricular function’ indicates a problem or is nonsensical.” Resp. 57 (citing Ex. 1008 ¶¶ 82–83, 101–116); *see* Sur-reply 26.

In addition, Patent Owner contends that “[a]t best, Soble determines if its report complies with one practice,” *i.e.*, “report completeness” by having “text in every location it should have text.” Resp. 56; *see id.* at 55. Patent Owner also contends that even if “ensuring all of a report’s blanks are filled

with *any* text (even gibberish) is an indication of compliance with a best practice,” it “is *just one* best practice, and the claims require at least two.” Sur-reply 26 (emphases by Patent Owner).

Further, Patent Owner argues that “Soble gives example warnings and alerts regarding the presence of a section or text in the report that are unrelated to best practices, such as a user searching for a certain section in the report.” Resp. 58 (citing Ex. 1008 ¶¶ 136–141). Patent Owner asserts that “[i]f the system cannot find the desired section, it ‘responds with a verbalized warning . . . that no matching section was found.’” *Id.* (quoting Ex. 1008 ¶ 139). Patent Owner similarly asserts that Soble’s system checks whether there are “entire sections that are missing, not just a blank in a random macro template, but the entire section.” Tr. 90:20–91:23.

In response, Petitioner asserts that step (B) “only requires a determination that there is ‘*an indication* of compliance,’ which is distinct from determining whether or not the information *actually* complies.” Reply 23 (emphases by Petitioner); *see* Ex. 1025 ¶ 26. In addition, Petitioner contends that the ’829 patent discloses that “an indication of compliance” is “satisfied simply by determining” whether “information has been provided.” Reply 23 (citing Ex. 1001, 5:15–22).

We agree with Petitioner that Soble teaches step (B). The ’829 patent explains that best practices include “rules, guidelines, or preferences” for information “included in [a] report (such as the patient’s name and date of the patient’s visit)” and actions “required to be taken before [a] report can be completed (such as performing a particular procedure, such as a foot exam, on the patient during the visit described in the report).” Ex. 1001, 6:8–16.

According to the patent, a preference for a “piece of information” constitutes a best practice. *Id.* at 5:23–27.

Just as a patient’s name and visit date relate to different best practices, a patient’s left ventricular function and calcium score also relate to different best practices. *See* Ex. 1001, 5:23–27, 6:8–12. Thus, in the Soble examples that Dr. Sears discussed, the “rules, guidelines, or preferences” for a report containing a patient’s left ventricular function and calcium score constitute a plurality of best practices. *See* Ex. 1003, A53–A54, A58; Ex. 1008 ¶¶ 82–83; Ex. 1025 ¶ 30. Hence, contrary to Patent Owner’s contentions, Soble’s system does not determine compliance with just one best practice. *See* Resp. 55–56; Sur-reply 26.

The ’829 patent also explains that a conclusion concerning an “indication of compliance” with a best practice may rest on “the presence of information” or “the absence of information” in the structured document. Ex. 1001, 5:7–22; *see id.* at code (57) (describing “a conclusion that required information is missing”). The patent discloses an example where determining whether a structured document includes an “indication of compliance” with a best practice involves determining whether a structured document includes a “piece of information.” *Id.* at 5:23–27.

In the Soble examples that Dr. Sears discussed, a user “indicates that a report is complete,” and the system “check[s] whether any required content is missing from the report and present[s] spoken prompts for the missing content,” i.e., a patient’s left ventricular function and calcium score. Ex. 1008 ¶¶ 82–83; *see id.* ¶¶ 27, 64, Fig. 3; Ex. 1003, A53–A54, A58; Ex. 1025 ¶ 30. Soble teaches that to determine whether any required content is missing and to present spoken prompts for the missing content, the system

produced a conclusion based on “the absence of information” in the report. *See* Ex. 1003, A53–A54; Ex. 1025 ¶ 29; *see also* Ex. 1001, 5:19–22. Even if the system “just checks to see if all of the blanks are filled in with *something*,” as Patent Owner asserts, “the absence of information” in the report constitutes “an indication of compliance with a best practice.” Ex. 1001, 5:7–22; *see* Resp. 56.

In addition, Soble’s system does not “just check to see if all of the blanks are filled in with *something*,” as Patent Owner asserts. Ex. 1008 ¶ 27; *see* Resp. 56. Soble discloses checking a report for “problems with the user input” and “incompatibility of the information with either the current report or a previous report.” Ex. 1008 ¶ 27; *see* Ex. 1003, A55–A56.

Patent Owner’s assertions that Soble’s system checks for the presence or absence of report sections does not accurately reflect the entirety of Soble’s disclosure. *See* Resp. 58 (citing Ex. 1008 ¶¶ 136–141); Tr. 90:20–91:23. While Soble discloses checking for the presence or absence of a report section, Soble also discloses checking for the presence or absence of specific information or data. *See, e.g.*, Ex. 1008 ¶¶ 26–27, 81–83, 136–141. For example, the system may “issu[e] warnings or alerts based on the presence or absence of specific information in the report.” *Id.* ¶ 26; *see* Ex. 1003, A54; Ex. 1025 ¶ 29.

(d) Step (C)

Claim 1 also recites “(C) inserting content into the structured document, based on the conclusion, to produce a modified structured document.” Ex. 1001, 13:13–15.

Petitioner asserts that Soble teaches step (C) because Soble discloses prompting a user “to provide additional information” after determining that

“required content is missing.” Pet. 60–61; *see* Ex. 1003, A58–A59; Ex. 1025 ¶ 30. Petitioner contends that “after being prompted to provide additional information, the user enters additional information . . . such as entering data items or providing an additional, or refined, selection to the plurality of responses.” Pet. 61 (alteration by Petitioner) (quoting Ex. 1008 ¶ 64); *see* Ex. 1003, A59. Further, Petitioner asserts that Soble discloses processing the “additional information” provided by the user and placing the “additional information” in the report, thus producing “a modified structured document.” Pet. 61–62; *see* Ex. 1003, A59–A60. According to Petitioner, an ordinarily skilled artisan would have understood that “the additional information would be given in response to the system determining the report did not comply with standards relating to report completeness,” i.e., in response to a “conclusion” according to step (B). Pet. 61; *see* Ex. 1003, A53, A59–A60.

Patent Owner disputes that Soble teaches step (C). *See* Resp. 65–66; Sur-reply 26–27. Specifically, Patent Owner asserts that “Soble prompts the user to fill out a macro template’s blanks *before* the completed macro’s text string—with no remaining blanks—is inserted into the report.” Sur-reply 26–27 (emphasis by Patent Owner); *see* Resp. 66. Thus, according to Patent Owner, “the alleged insertion is not ‘based on the conclusion’ regarding the alleged structured document, the report, or the report’s compliance with any best practices.” Sur-reply 27; *see* Resp. 65–66 (similarly arguing that the blanks in a macro “are not filled out ‘based on the conclusion’ regarding *the report* or its compliance with a plurality of best practices”).

We agree with Petitioner that Soble teaches step (C). Soble explains that the system may “verify[] the report content with respect to standards

regarding report completeness.” Ex. 1008 ¶ 26; *see* Ex. 1003, A53. In addition, as discussed above for step (B), in the Soble examples that Dr. Sears discussed, a user “indicates that a report is complete,” and the system “check[s] whether any required content is missing from the report and present[s] spoken prompts for the missing content,” i.e., a patient’s left ventricular function and calcium score. Ex. 1008 ¶¶ 82–83; *see id.* ¶¶ 27, 64, Fig. 3; Ex. 1003, A53–A54, A58; Ex. 1025 ¶ 30; *supra* § III.F.2(c). When a user “indicates that a report is complete,” the report at that point corresponds to a “structured document.” *See* Ex. 1003, A59–A60; Ex. 1008 ¶ 82. When a user inserts the missing content into the report responsive to the spoken prompts, the system “produce[s] a modified structured document” according to step (C). Ex. 1003, A60; *see* Ex. 1008 ¶¶ 64, 82–83. Moreover, the content inserted into the report responsive to the spoken prompts is “based on the conclusion” produced in step (B), i.e., the conclusion that the report lacks the content that resulted in the spoken prompts. *See* Ex. 1003, A59–A60; Ex. 1025 ¶ 30.

Also, because a report may lack specific information or data when a user “indicates that a report is complete,” Soble’s system does not require a user to complete a macro template when the user invokes the macro template. *See* Ex. 1008 ¶¶ 64, 82–83, Fig. 3. As explained below for claim 18, Soble contemplates that a user might not complete a macro template during report preparation. *See infra* § III.F.7.

(e) Steps (D) and (E)

Claim 1 further recites “(D) generating a first indication that a user should provide additional input of a first type to conform the structured document to a first best practice in the plurality of best practices” and

“(E) generating a second indication that the user should provide additional input of a second type to conform the structured document to a second best practice in the plurality of best practices.” Ex. 1001, 13:16–23.

Petitioner asserts that Soble teaches steps (D) and (E) because Soble discloses providing “**prompts** for additional information that is needed to complete a report, such as strings of text required to complete the options in a macro template.” Pet. 58 (emphasis by Petitioner) (quoting Ex. 1008 ¶ 27); *see* Ex. 1003, A55–A56. Further, Petitioner asserts that Soble discloses that macro templates “may be used to conform a document to certain best practices.” Pet. 58; *see* Ex. 1003, A56. Petitioner adds that “Soble discloses generating multiple indications in a loop to prompt a user to provide additional information.” Pet. 59 (citing Ex. 1008, Fig. 3); *see* Ex. 1003, A57.

In addition, Petitioner identifies Soble’s example where the system initially prompts the user to “Enter left ventricular function” and subsequently prompts the user to “Enter calcium score.” Pet. 60 (citing Ex. 1008 ¶ 83); *see* Ex. 1003, A58. Petitioner then contends that (1) reporting “information regarding left ventricular function” represents “a first best practice” following an angiography and (2) reporting “information regarding the patient’s calcium score” represents “a second best practice” following an angiography. Pet. 60; *see* Ex. 1003, A53–A54, A58; Ex. 1025 ¶ 30.

Patent Owner disputes that Soble teaches steps (D) and (E). *See* Resp. 62–65. In particular, Patent Owner contends that Petitioner “failed to demonstrate that Soble teaches these steps” because Petitioner “pointed only to one alleged best practice,” i.e., “report completeness.” Resp. 62–63; *see*

id. at 64. Patent Owner references the Soble examples that Dr. Sears discussed where the report lacked entries for left ventricular function and calcium score and the system “prompted the user to provide text to fill those fields.” *Id.* at 64 (citing Ex. 1008 ¶¶ 82–83). Patent Owner then contends that Soble does not disclose “checking to see if the information is indicative of a problem with the patient or even a valid input.” *Id.*

In response, Petitioner asserts that steps (D) and (E) “only require that the user ‘should provide additional input’ that conforms to the first or second best practice.” Reply 2 (quoting Ex. 1001, 13:16–23); *see id.* at 23; Ex. 1025 ¶ 27. Petitioner also asserts that “there is no requirement that the claimed method additionally check whether the provided information **actually** conforms to a best practice.” Reply 2 (emphasis by Petitioner); *see* Ex. 1025 ¶¶ 26–27.

We agree with Petitioner that Soble teaches steps (D) and (E). Each step requires generating an “indication that a user should provide additional input” to “conform the structured document to” a “best practice[.]” The ’829 patent explains that a “best practice[.]” includes a “rule[], guideline[], or preference[.]” for information “included in [a] report.” Ex. 1001, 6:8–16. According to the patent, a preference for a “piece of information” constitutes a best practice. *Id.* at 5:23–27. The patent does not indicate that a best practice necessarily involves checking the preferred information for accuracy. *See, e.g., id.* at 5:7–50, 6:8–16, 6:29–48, 8:19–29, 9:38–10:11.

In the Soble examples that Dr. Sears discussed, the “rules, guidelines, or preferences” for a report containing a patient’s left ventricular function and calcium score constitute a plurality of best practices. *See* Ex. 1003, A53–A54, A58; Ex. 1008 ¶¶ 82–83; Ex. 1025 ¶ 30. Generating a prompt for

the user to provide the patient's left ventricular function corresponds to "generating a first indication that a user should provide additional input of a first type to conform the structured document to a first best practice" according to step (D). Ex. 1008 ¶¶ 82–83; *see id.* ¶¶ 27, 64, Fig. 3; Ex. 1003, A53–A54, A58; Ex. 1025 ¶¶ 27, 30. Generating a prompt for the user to provide the patient's calcium score corresponds to "generating a second indication that the user should provide additional input of a second type to conform the structured document to a second best practice" according to step (E). Ex. 1008 ¶¶ 82–83; *see id.* ¶¶ 27, 64, Fig. 3; Ex. 1003, A53–A54, A58; Ex. 1025 ¶¶ 27, 30.

In addition, as discussed above for step (B), and contrary to Patent Owner's contentions, Soble discloses checking a report for "problems with the user input" and "incompatibility of the information with either the current report or a previous report." Ex. 1008 ¶ 27; *see* Resp. 56, 64; *supra* § III.F.2(c).

(f) Conclusion for Claim 1

For the reasons discussed above, Petitioner has shown by a preponderance of the evidence that claim 1 is unpatentable under § 103(a) as obvious over Soble in view of an ordinarily skilled artisan's knowledge.

3. DEPENDENT CLAIMS 2, 3, AND 21

Claims 3 and 21 each depend from claim 2 and recite the same steps. Ex. 1001, 13:29–33, 14:35–39. Claims 2 and 21 read as follows:

2. The method of claim 1, wherein (C) comprises:
 - (C)(1) prompting a human user to provide the content;
 - (C)(2) receiving input from the human user representing the content; and
 - (C)(3) inserting the content into the structured document.

21. The method of claim 2:

wherein (C)(1) comprises displaying a structured input element;

wherein (C)(2) comprises receiving input from the human user in the structured input element.

Id. at 13:24–28, 14:35–39.

(a) Claim 2

Petitioner contends that Soble teaches claim 2 step (C)(1) for the same reasons that Soble teaches claim 1 steps (C), (D), and (E). Pet. 63; *see* Ex. 1003, A61 (quoting Ex. 1008 ¶¶ 82–83). Petitioner contends that Soble teaches claim 2 step (C)(2) because Soble “discloses that [a] medical professional supplies the missing content in response to a system prompt.” Pet. 63; *see* Ex. 1003, A61–A62 (quoting Ex. 1008 ¶¶ 82–83). Petitioner contends that Soble teaches claim 2 step (C)(3) for the same reasons that Soble teaches claim 1 step (C). Pet. 63; *see* Ex. 1003, A63. Dr. Sear’s testimony parallels Petitioner’s contentions. *Compare* Ex. 1003, A61–A63, *with* Pet. 63.

Patent Owner does not make any arguments specific to claim 2. *See, e.g.*, Resp. 69–71; Sur-reply 29.

For the reasons articulated by Petitioner and Dr. Sears, we agree that Soble teaches claim 2’s subject matter. *See* Pet. 62–63; Ex. 1003, A61–A63; Ex. 1008 ¶¶ 82–88; *supra* §§ III.F.2(d)–(e).

(b) Claims 3 and 21

Petitioner contends that the subject matter of claims 3 and 21 would have been obvious over Soble in view of an ordinarily skilled artisan’s knowledge. Specifically, Petitioner asserts that “displaying a structured input element” according to step (C)(1) would have been obvious to an

ordinarily skilled artisan because Soble’s claim 30 “explicitly claims ‘a display device to illustrate the information’ that a user inputs.” Pet. 64; *see* Ex. 1003, A64. Petitioner then contends that an ordinarily skilled artisan would have understood “that this same display device would be used to display the system prompts that are being provided to the user aurally.” Pet. 64; *see* Ex. 1003, A64. Further, Petitioner urges that Soble’s “disclosure of ‘a keyboard or mouse’ for inputting information” suggests “a visual display” to “provide visual feedback to the user.” Pet. 64 (quoting Ex. 1008 ¶ 117).

In addition, Petitioner asserts that Soble teaches “receiving input from the human user in the structured input element” according to step (C)(2) because Soble “discloses that [a] medical professional supplies the missing content in response to a system prompt.” Pet. 63, 65; *see* Ex. 1003, A61–A62, A68.

To support Petitioner, Dr. Sears stated that “Soble’s user prompts are structured input elements.” Ex. 1003, A65. He identified Soble’s audible pick-list options as “one example of a structured input element.” *Id.* In addition, Dr. Sears explained that an ordinarily skilled artisan would have understood “that the audio prompts presented to a user would also be advantageously displayed, simultaneously, on a visual display device.” *Id.* at A64. He also explained that an ordinarily skilled artisan would have known “that certain situations would in fact *not* be best suited for receiving audio.” *Id.* (emphasis by Dr. Sears). As examples of those situations, Dr. Sears identified “a noisy environment or where a user needs to be focusing on some other audio source, such as a patient’s voice.” *Id.* He

explained that “presenting the feedback visually on a display device would be beneficial” in those situations. *Id.*

In response, Patent Owner asserts that “displaying a structured input element” according to step (C)(1) “requires *visibly* presenting an input element such as a form field.” Resp. 69 (emphasis by Patent Owner). Patent Owner also asserts that “Soble teaches only *audibly* presenting its structured input elements.” *Id.* (emphasis by Patent Owner). In addition, Patent Owner contends that “a display device to illustrate the information” according to Soble’s claim 30 illustrates the “information from a user input” according to Soble’s claim 28, “not the system’s prompts or structured input elements.” *Id.* at 71.

We agree with Petitioner that the subject matter of claims 3 and 21 would have been obvious over Soble in view of an ordinarily skilled artisan’s knowledge. Soble discloses a display device. Ex. 1008 ¶¶ 8–9, 39, claim 30; *see* Ex. 1003, A64. Soble does not describe any restrictions on what the display device may display. *See, e.g.*, Ex. 1008 ¶¶ 8–9, 39. Further, as Dr. Sears stated, “Soble’s user prompts are structured input elements,” e.g., Soble’s audible pick-list options. Ex. 1003, A65. Patent Owner asserts that “Soble teaches only *audibly* presenting its structured input elements,” and thus concedes that Soble discloses structured input elements. Resp. 69.

In addition, as Dr. Sears explained, an ordinarily skilled artisan would have known to display structured input elements because “presenting the feedback visually on a display device would be beneficial” in certain situations, e.g., “a noisy environment or where a user needs to be focusing on some other audio source, such as a patient’s voice.” Ex. 1003, A64.

Hence, an ordinarily skilled artisan would have been motivated to modify Soble to “display[] a structured input element” according to step (C)(1).

Moreover, Soble explains that structured reporting permits a user “to record information using a computer user interface, such as a mouse and/or keyboard.” Ex. 1008 ¶ 10; *see* Ex. 1003 ¶ 54, A65. Soble discloses examples of structured reporting “by clicking [an] on-screen button with a mouse or touching it using a touch screen, or by pressing a key on a keyboard.” Ex. 1008 ¶¶ 139–140; *see id.* ¶¶ 24, 117.

Further, Soble teaches “receiving input from the human user in the structured input element” according to step (C)(2) because Soble discloses receiving user input in response to prompts for specific information or data. Ex. 1008 ¶¶ 82–83, 87–88; *see id.* ¶¶ 24, 117, 132–133, 139–140; Ex. 1003, A61–A62, A65, A68. Consistent with receiving user input via displayed structured input elements, Soble discloses receiving user input “via keyboard entry, mouse clicks or drag-and-drop, touch screen selections, and button presses.” Ex. 1008 ¶ 24; *see* Tr. 50:26–51:2 (explaining that “typical examples of structured input are pull-down lists and radio buttons”).

For the reasons discussed above, Petitioner has shown by a preponderance of the evidence that claim 21 is unpatentable under § 103(a) as obvious over Soble in view of an ordinarily skilled artisan’s knowledge.⁵

4. DEPENDENT CLAIM 4

Claim 4 depends from claim 3 and specifies that “the structured input element comprises a form field.” Ex. 1001, 13:34–35.

⁵ As noted above, Petitioner does not challenge claims 2 and 3. *See* Pet. 7–8; *supra* § II.E.

Petitioner contends that claim 4’s subject matter would have been obvious over Soble in view of an ordinarily skilled artisan’s knowledge because Soble discloses receiving user input via audible pick-list options. Pet. 66–67; *see* Ex. 1003, A69. Petitioner cites the following Soble example with audible pick-list options denoted by the symbol “▼” and four categories of stenosis severity:

There is a [STENOSIS ▼] lesion in the [LOCATION]
<IMPRESSION>
Mild: mild (<30%)
Moderate: moderate (30-50%)
Moderately-severe: moderately severe (50-70%)
Severe: severe (>70%)

Pet. 66; *see* Ex. 1003, A69. In this example, a user says, “Macro coronary lesion,” and the system responds by saying, “Coronary lesion recorded. Select stenosis from mild, moderate, moderately-severe, severe.” Ex. 1008 ¶¶ 94–99.

Petitioner analogizes Soble’s audible pick-list options “to both a text field and a dropdown list” because “a user is able to input information into” a placeholder “by selecting from a list of available options.” Pet. 66–67; *see* Ex. 1003, A69. Petitioner asserts that an ordinarily skilled artisan would have understood Soble’s audible pick-list options “to be a form field.” Pet. 66; *see* Ex. 1003, A69.

In response, Patent Owner contends that Petitioner incorrectly points to a “▼” symbol as “indicating a visible dropdown menu” and that the “▼” symbol denotes a “list of text strings (mild, moderate, etc.) that may be *verbally* entered into” a placeholder. Resp. 69–70 (emphasis by Patent Owner) (citing Ex. 1008 ¶¶ 94–99; Ex. 2003 ¶¶ 223–228). Patent Owner

also contends that Petitioner failed to demonstrate that an ordinarily skilled artisan would have modified Soble “to display the form fields, especially given Soble’s emphasis on” (1) “freeing up display space for other uses” and (2) “freeing the user from having to interact with a display, mouse, and keyboard” while working. *Id.* at 71.

We agree with Petitioner that claim 4’s subject matter would have been obvious over Soble in view of an ordinarily skilled artisan’s knowledge. The ’829 patent explains that a “prompt may take the form of a form field, such as a text field, check box, or dropdown list.” Ex. 1001, 8:36–39; *see id.* at 8:56–58, Fig. 1D. Soble discloses receiving user input via audible pick-list options. Ex. 1008 ¶¶ 12, 94–99; *see* Ex. 1003, A69. Those pick-list options parallel the options in a dropdown list “where a user may make a selection from a limited set of options.” Ex. 1003, A69. Hence, an ordinarily skilled artisan would have understood that Soble’s audible pick-list options constitute a form field like a dropdown list. *Id.*

As Patent Owner asserts, Soble discloses presenting pick-list options audibly instead of visibly. Ex. 1008 ¶¶ 94–99; *see* Resp. 69–70. As discussed above for claims 3 and 21, however, an ordinarily skilled artisan would have known to display structured input elements because “presenting the feedback visually on a display device would be beneficial” in certain situations. Ex. 1003, A64; *see supra* § III.F.3(b).

Although Soble describes benefits from receiving user input orally, e.g., freeing up display space, Soble also contemplates receiving user input “via keyboard entry, mouse clicks or drag-and-drop, touch screen selections, and button presses.” Ex. 1008 ¶ 24; *see id.* ¶¶ 10, 24, 62–63, 79, 117, 139; Ex. 1003, A65. Also, as discussed above for claims 3 and 21, Soble

discloses examples of structured reporting “by clicking [an] on-screen button with a mouse or touching it using a touch screen, or by pressing a key on a keyboard.” Ex. 1008 ¶¶ 139–140; *see supra* § III.F.3(b). Further, Dr. Sears identified reasons that would have prompted an ordinarily skilled artisan to display structured input elements, e.g., “a form field.” Ex. 1003, A64; *see supra* § III.F.3(b).

For the reasons discussed above, Petitioner has shown by a preponderance of the evidence that claim 4 is unpatentable under § 103(a) as obvious over Soble in view of an ordinarily skilled artisan’s knowledge.

5. DEPENDENT CLAIM 6

Claim 6 depends from claim 1 and specifies that step (B) comprises the following steps: (1) “identifying a type of the structured document”; (2) “identifying a best practice associated with the identified type”; and (3) “determining whether the structured document includes an indication of compliance with the identified best practice to produce the conclusion.” Ex. 1001, 13:40–46.

Petitioner asserts that Soble teaches “identifying a type of the structured document” according to claim 6 because “Soble discloses numerous report formats,” e.g., gastroenterological report, cardiology report, and radiology report. Pet. 68 (citing Ex. 1008 ¶ 26); *see* Reply 24; Ex. 1003, A71. Petitioner also asserts that certain reports require additional information, e.g., information about “left main artery (LM), left anterior descending artery (LAD), left circumflex artery (LCx), and right coronary artery (RCA)” in a computed tomography (CT) angiography report. Pet. 68 (quoting Ex. 1008 ¶ 67); *see* Reply 24–25; Ex. 1003, A71. Petitioner argues that an ordinarily skilled artisan would have understood “that in order to

determine that this additional information was required, the system would first determine the type of the structured document.” Pet. 68; *see* Ex. 1003, A71.

Petitioner contends that Soble teaches “identifying a best practice associated with the identified type” according to claim 6 because (1) Soble discloses requiring additional information for certain reports and (2) a requirement for additional information constitutes a best practice. Pet. 68; *see* Ex. 1003, A71–A72. Petitioner also contends that “a requirement to provide additional information about certain arteries,” for example, constitutes a best practice. Pet. 68; *see* Ex. 1003, A71–A72.

In addition, Petitioner contends that Soble teaches “determining whether the structured document includes an indication of compliance with the identified best practice to produce the conclusion” according to claim 6 because “Soble discloses that the system can ‘issue[] warnings or alerts based on the presence or absence of specific information in the report.’” Pet. 69 (alteration by Petitioner) (quoting Ex. 1008 ¶ 26); *see* Ex. 1003, A73. According to Petitioner, “the system must make a determination about whether information is present or absent in order to provide a warning.” Pet. 69; *see* Ex. 1003, A73.

Patent Owner disputes that Soble teaches claim 6’s subject matter. *See* Resp. 66–67; Sur-reply 27–28. In particular, Patent Owner contends that claim 6 “requires identifying a type of the structured document as part of” claim 1 step (B), while Soble identifies a type of report as part of claim 1 step (A). Resp. 66; *see* Sur-reply 27–28. Patent Owner asserts that “the first thing Soble’s user must do is identify what type of report the user will dictate” because the system “needs to know the report type to know what

sections it will have.” Resp. 66–67 (citing Ex. 1008 ¶ 63; Ex. 2003 ¶¶ 209–215). In addition, Patent Owner contends that nothing in Soble teaches “analyzing the user’s text to determine and dynamically change the report type (and thus required sections) *after* the user begins filling out the report.” Sur-reply 28 (emphasis by Patent Owner).

We agree with Petitioner that Soble teaches claim 6’s subject matter. Soble explains that a user may initially specify a report format, e.g., gastroenterological report, cardiology report, or radiology report. Ex. 1008 ¶ 63; *see id.* ¶¶ 20, 26; Ex. 1003 ¶ 54, A71. Soble further explains that after specifying a report format, a user may add content to the report, e.g., by “providing an additional, or refined, selection” to the system. *See* Ex. 1008 ¶¶ 64–65, 67–73, Fig. 3; Ex. 1003, A71.

For instance, Soble’s Figure 4 depicts a radiology report “that has been organized into sections,” i.e., sections for “clinical history 502; procedure 503; findings 504 (grouped into (sub)sections by anatomy, pathology or subprocedure); comparisons 506; and impressions 507.” Ex. 1008 ¶ 65, Fig. 4; *see id.* ¶ 56; Ex. 1003, A49. Soble discloses an example where a user creates a CT angiography report from Figure 4’s radiology report by causing the system to include “sections for the coronary arteries added within the findings section: left main artery (LM), left anterior descending artery (LAD), left circumflex artery (LCx), and right coronary artery (RCA).” Ex. 1008 ¶¶ 67–73; *see* Ex. 1003, A71–A72.

By adding those sections to a radiology report’s findings section, the system produces a particular kind of radiology report, i.e., a CT angiography report. Ex. 1008 ¶ 67; *see* Ex. 1003, A71–A72. In essence, the added sections tailor the initial report format and produce a specific report “type”

from a generic report “type.” For a radiology report, other specific types include an X-ray report and an ultrasound report. *See* Ex. 1008 ¶ 17. Thus, Soble teaches “identifying a type of the structured document” according to claim 6.

Further, Soble teaches “identifying a best practice associated with the identified type” according to claim 6 because Soble discloses requiring additional information in a particular type of radiology report, e.g., information about “left main artery (LM), left anterior descending artery (LAD), left circumflex artery (LCx), and right coronary artery (RCA)” in a CT angiography report. Ex. 1008 ¶¶ 65, 67, Fig. 4. The requirements for information about those four arteries constitute a plurality of best practices. Ex. 1003, A71–A72; *see* Ex. 1001, 5:23–27, 6:8–16.

In addition, Soble teaches “determining whether the structured document includes an indication of compliance with the identified best practice to produce the conclusion” according to claim 6 for the same reasons that Soble teaches “determining” according to claim 1 step (B). *See* Ex. 1003, A53–A54, A73; *supra* § III.F.2(c). As Dr. Sears stated, “[i]n order to issue an alert about the presence or absence of information, the system must first determine whether the information is present or absent and conclude that it either is or is not present.” Ex. 1003, A73.

For the reasons discussed above, Petitioner has shown by a preponderance of the evidence that claim 6 is unpatentable under § 103(a) as obvious over Soble in view of an ordinarily skilled artisan’s knowledge.

6. DEPENDENT CLAIMS 12 AND 13

Claim 12 depends from claim 1 and recites “generating a prompt for additional input, based on the conclusion, the prompt rendered separately

from a rendering of the structured document.” Ex. 1001, 13:64–67.

Claim 13 depends from claim 12 and recites the following steps: “receiving input representing the content” and “removing the rendered prompt.” *Id.* at 14:1–3.

In the Petition, Petitioner relied on Soble’s aural prompts for claims 12 and 13. *See* Pet. 69–71. In our Institution Decision, we questioned whether the phrase “prompt rendered separately from a rendering of the structured document” in claim 12 encompasses aural prompts or only encompasses visible prompts. Inst. Dec. 37–39. In the Response, Patent Owner asserted that “the claimed renderings must be visible.” Resp. 68; *see id.* at 18–20. In the Reply, Petitioner stated that it “will not pursue its argument that an auditory display is within the scope of” claims 12 and 13. Reply 10.

In view of Petitioner’s modified contentions as set forth in the Reply, Petitioner has not shown by a preponderance of the evidence that claims 12 and 13 are unpatentable under § 103(a) as obvious over Soble in view of an ordinarily skilled artisan’s knowledge.

7. DEPENDENT CLAIM 18

Claim 18 depends from claim 1 and specifies that step (C) comprises “inserting, into the structured document, an indication that the content is missing.” Ex. 1001, 14:22–24.

Petitioner contends that Soble teaches claim 18’s subject matter because “Soble discloses inserting placeholders into a report that indicate required content is missing from the report.” Pet. 71; *see* Ex. 1003, A78. To support that contention, Petitioner cites the chart from Soble reproduced below (Pet. 72):

Macro Name	Text String
“Right dominant”	The coronary circulation is right dominant.
“Normal coronaries”	The _____ coronary arteries are patent without significant disease.
“LAD lesion”	The left anterior descending artery has a _____ stenosis in the _____ segment.

This chart shows in the left column the names for macros and macro templates and shows in the right column the text strings and placeholder locations associated with the respective macros and macro templates. *See* Ex. 1008 ¶ 13.

Petitioner asserts that a placeholder indicates that a user must provide content that is missing. Pet. 71–72; *see* Ex. 1003, A78. Petitioner also asserts that “Soble teaches that in response to a prompt to provide information that conforms with a best practice, the user could insert a macro with a placeholder.” Reply 25.

Patent Owner disputes that Soble teaches claim 18’s subject matter. *See* Resp. 67–68; Sur-reply 28. In particular, Patent Owner contends that claim 18 concerns claim 1 step (C) and that Petitioner impermissibly relies on the same placeholders for claim 18 that Petitioner “relied on for step (B) as providing an indication of compliance and to trigger the prompts for steps (D) and (E)” in claim 1. Resp. 67–68. Further, Patent Owner asserts that “Soble does not insert macros with empty placeholders into its report” and instead “requires the user to fill out the placeholders before inserting text into the document.” Resp. 68 (citing Ex. 1008 ¶ 84); *see* Sur-reply 28. Patent Owner also asserts that a “macro template’s blanks are not indications

of anything in the report, *i.e.*, the alleged structured document.”

Sur-reply 28.

We agree with Petitioner that Soble teaches claim 18’s subject matter. Soble explains that a macro template contains “a mix of text strings and placeholders” and that placeholders “indicate where the user may—or must—insert additional text.” Ex. 1008 ¶ 12; *see* Ex. 1003 ¶ 53; Ex. 1025 ¶ 29. If a user invokes a macro template by saying its name, “the associated text and placeholders are positioned in” a report. Ex. 1008 ¶ 12; *see id.* ¶¶ 13–14, Fig. 1. A placeholder is “an indication that the content is missing” according to claim 18. Ex. 1003, A78.

Contrary to Patent Owner’s assertions, Soble does not require a user to complete a macro template before inserting additional content into a report. *See* Ex. 1008 ¶¶ 14, 82–83, Fig. 1; Resp. 68; Sur-reply 28. Soble discloses prompting a user to complete a macro template when the user invokes the macro template. Ex. 1008 ¶¶ 84–89. But Soble does not require a user to complete a macro template when the user invokes the macro template because the “system can check whether any required content is missing from the report” based on “an analysis of the report as a whole.” Ex. 1008 ¶ 82; *see id.* ¶ 14, Fig. 1. Moreover, “an analysis of the report as a whole” may occur when a user “indicates that a report is complete,” e.g., after the user has invoked multiple macro templates. *Id.* ¶ 82. Hence, Soble contemplates that a user might not complete a macro template during report preparation.

As an example, Soble’s Figure 1(a) shows a report prepared by initially invoking a macro, next invoking a macro template with one placeholder, and finally invoking a macro template with two placeholders.

Ex. 1008 ¶¶ 14, 53, Fig. 1. That report contains three placeholders indicating that content is missing. *Id.* ¶ 14, Fig. 1.

Further, if “an analysis of the report as a whole” determines that “required content is missing from the report,” the system may “present spoken prompts for the missing content.” Ex. 1008 ¶¶ 82–83. A user may respond to a prompt for missing content by, among other things, invoking a macro template containing a placeholder indicating that content is missing. *See id.* ¶¶ 12–13, 63–64, Fig. 3. When a user responds to a prompt for missing content by invoking a macro template containing a placeholder, the system “insert[s], into the structured document, an indication that the content is missing” according to claim 18.

For the reasons discussed above, Petitioner has shown by a preponderance of the evidence that claim 18 is unpatentable under § 103(a) as obvious over Soble in view of an ordinarily skilled artisan’s knowledge.

8. DEPENDENT CLAIM 25

Claim 25 depends from claim 4 and recites “displaying a label with the form field to guide the user in providing input.” Ex. 1001, 14:46–47.

Petitioner contends that claim 25’s subject matter would have been obvious over Soble in view of an ordinarily skilled artisan’s knowledge for the same reasons that the subject matter of claims 3 and 4 would have been obvious. Pet. 72; *see* Ex. 1003, A80. To support Petitioner, Dr. Sears cited the Soble example with audible pick-list options denoted by the symbol “▼” and four categories of stenosis severity. Ex. 1003, A80 (citing Ex. 1008 ¶¶ 94–99). In that example, Dr. Sears identified the words “[s]elect stenosis from mild, moderate, moderately-severe, severe” as a label for the pick-list options. *Id.* (alteration by Dr. Sears) (quoting Ex. 1008 ¶ 99).

Patent Owner disputes that claim 25's subject matter would have been obvious for the same reasons that Patent Owner disputes that the subject matter of claims 3 and 4 would have been obvious. *See* Resp. 69–71; Sur-reply 29.

We agree with Petitioner that claim 25's subject matter would have been obvious over Soble in view of an ordinarily skilled artisan's knowledge. As discussed above for claims 3 and 4, an ordinarily skilled artisan would have known to display structured input elements, such as pick-list options, because “presenting the feedback visually on a display device would be beneficial” in certain situations. Ex. 1003, A64, A69. Soble discloses identifying each pick-list option with one or more words, i.e., labeling each pick-list option. Ex. 1003, A80; Ex. 1008 ¶ 99. Just as an ordinarily skilled artisan would have known to display structured input elements, that artisan would have known to display labels for structured input elements. *See* Ex. 1003, A64, A69, A80. Without labels, structured input elements would fail to indicate what data to input. *Id.* at A33.

For the reasons discussed above, Petitioner has shown by a preponderance of the evidence that claim 25 is unpatentable under § 103(a) as obvious over Soble in view of an ordinarily skilled artisan's knowledge.

9. DEPENDENT CLAIM 26

Claim 26 depends from claim 1 and specifies that step (A) comprises “applying automatic speech recognition to a first portion of the audio signal to produce a structured document representing contents of the first portion of the audio signal, during generation of a second portion of the audio signal.” Ex. 1001, 14:48–52.

Petitioner contends that claim 26's subject matter would have been obvious over Soble in view of an ordinarily skilled artisan's knowledge because claim 26 covers the "common feature of ASR systems" that "speech synthesis may be performed while a user is simultaneously providing audio input." Pet. 73. Petitioner asserts that it would have been obvious to an ordinarily skilled artisan to "apply ASR to produce the report (*i.e.*, structured document) while the user is dictating additional information (*i.e.*, generating a second portion of an audio signal)." *Id.*

To support Petitioner, Dr. Sears stated that "continuous speech recognition systems continuously process the user's audio . . . while the user continues to speak." Ex. 1003 ¶ 18. He explained that an ordinarily skilled artisan would have known "that speech recognition systems would function to allow a user to input audio while speech recognition was performed on earlier inputted audio" because "this is exactly what is contemplated by continuous speech recognition." *Id.* at A34. He also explained that claim 26 covers "the functionality of continuous speech recognition, something that speech recognition systems were capable of before the priority date of the [']829 Patent." *Id.* According to Dr. Sears, it "would have been immediately obvious to" an ordinarily skilled artisan "that Soble's speech recognition system would be capable of applying automatic speech recognition to produce a structured document while the user generates a second portion of the audio signal." *Id.* at A81.

Patent Owner does not make any arguments specific to claim 26. *See, e.g.*, Resp. 66–71; Sur-reply 27–29.

We agree with Petitioner that claim 26's subject matter would have been obvious over Soble in view of an ordinarily skilled artisan's

knowledge. Because claim 26 covers “the functionality of continuous speech recognition,” it would have been obvious to an ordinarily skilled artisan “that Soble’s speech recognition system would be capable of applying automatic speech recognition to produce a structured document while the user generates a second portion of the audio signal.” Ex. 1003, A34, A81; *see id.* ¶ 18.

For the reasons discussed above, Petitioner has shown by a preponderance of the evidence that claim 26 is unpatentable under § 103(a) as obvious over Soble in view of an ordinarily skilled artisan’s knowledge.

IV. CONCLUSION

Based on the evidence presented with the Petition, the evidence introduced during the trial, and the parties’ respective arguments, Petitioner has shown by a preponderance of the evidence that (1) claims 1, 4, 6, 12, 13, 21, 25, and 26 are unpatentable under § 103(a) as obvious over Carus in view of an ordinarily skilled artisan’s knowledge; (2) claims 12, 13, 18, and 25 are unpatentable under § 103(a) as obvious over Carus in view of an ordinarily skilled artisan’s knowledge and Panzarasa; and (3) claims 1, 4, 6, 18, 21, 25, and 26 are unpatentable under § 103(a) as obvious over Soble in view of an ordinarily skilled artisan’s knowledge.⁶ But Petitioner has not

⁶ Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding after the issuance of this Final Written Decision, we draw Patent Owner’s attention to the April 2019 Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding. *See* 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of

shown by a preponderance of the evidence that claims 12 and 13 are unpatentable under § 103(a) as obvious over Soble in view of an ordinarily skilled artisan's knowledge.

In summary:

Claims	35 U.S.C. §	Reference(s)/ Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1, 4, 6, 12, 13, 21, 25, 26	103(a)	Carus	1, 4, 6, 12, 13, 21, 25, 26	
12, 13, 18, 25	103(a)	Carus, Panzarasa	12, 13, 18, 25	
1, 4, 6, 12, 13, 18, 21, 25, 26	103(a)	Soble	1, 4, 6, 18, 21, 25, 26	12, 13
Overall Outcome			1, 4, 6, 12, 13, 18, 21, 25, 26	

V. ORDER

Accordingly, it is

ORDERED that claims 1, 4, 6, 12, 13, 18, 21, 25, and 26 of the '829 patent are determined to be unpatentable; and

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

any such related matters in updated mandatory notices. *See* 37 C.F.R. § 42.8(a)(3), (b)(2).

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