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Paper 54
Entered: December 22, 2022

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MICROSOFT CORPORATION,
Petitioner,

v.

IPA TECHNOLOGIES INC.,
Patent Owner.

IPR2019-00810, IPR2019-00811, IPR2019-00814 (Patent 6,851,115 B1)
IPR2019-00835, IPR2019-00836 (Patent 7,069,560 B1)

Before LYNNE E. PETTIGREW, MINN CHUNG, and KEVIN C. TROCK, *Administrative Patent Judges.*

PER CURIAM.

JUDGMENT
Final Written Decision on Remand
Determining Some Challenged Claims Unpatentable
35 U.S.C. §§ 144, 318

I. BACKGROUND

This Remand Decision is a final written decision on remand from the United States Court of Appeals for the Federal Circuit, which affirmed in part and reversed in part the original Final Written Decisions in these five *inter partes* reviews and remanded for further proceedings regarding certain claims. *See Microsoft Corp. v. IPA Techs. Inc.*, No. 2021-1412, 2022 WL 989403 (Fed. Cir. Apr. 1, 2022) (nonprecedential); IPR2019-00810, Paper 44 ("810 Final Dec."); IPR2019-00811, Paper 44 ("811 Final Dec."); IPR2019-00814, Paper 44 ("814 Final Dec."); IPR2019-00835, Paper 42 ("835 Final Dec."); IPR2019-00836, Paper 42 ("836 Final Dec.").[1]

We have jurisdiction under 35 U.S.C. § 6, and we issue this Remand Decision under 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons discussed below, Petitioner has shown by a preponderance of the evidence that claims 8 and 86–89 of U.S. Patent No. 6,851,115 B1 (Ex. 1001, "the '115 patent")[2] and claims 10 and 11 of U.S. Patent No. 7,069,560 B1 (IPR2019-00835, Ex. 1001, "the '560 patent") are unpatentable. Petitioner has not proven by a preponderance of the evidence that claims 9, 10, and 63 of the '115 patent and claim 28 of the '560 patent are unpatentable.

A. Procedural History

In IPR2019-00810 ("810 IPR"), Petitioner, Microsoft Corporation, filed a Petition (Paper 1, "Pet.") requesting an *inter partes* review of

[1] The parties also appealed the Final Written Decisions in IPR2019-00812, IPR2019-00813, and IPR2019-00837. The Federal Circuit affirmed the Final Written Decisions in these three proceedings in their entirety. *See Microsoft*, 2022 WL 989403.

[2] Unless otherwise indicated, citations to papers and exhibits refer to documents filed in IPR2019-00810.

claims 1, 4–10, 15, 16, 29–32, 38, and 39 of the '115 patent. Patent Owner, IPA Technologies Inc., filed a Preliminary Response. Paper 6. Applying the standard set forth in 35 U.S.C. § 314(a), we instituted an *inter partes* review of the challenged claims. Paper 12 ("810 Inst. Dec.").

In IPR2019-00811 ("811 IPR"), Petitioner filed a Petition (811 IPR, Paper 1, "811 Pet.") requesting an *inter partes* review of claims 1, 12–14, 26–29, 33, 35–37, 45–47, and 86–89 of the '115 patent. Patent Owner filed a Preliminary Response. 811 IPR, Paper 6. We instituted an *inter partes* review of the challenged claims. 811 IPR, Paper 12 ("811 Inst. Dec.").

In IPR2019-00814 ("814 IPR"), Petitioner filed a Petition (814 IPR, Paper 1, "814 Pet.") requesting an *inter partes* review of claims 61–85 of the '115 patent. Patent Owner filed a Preliminary Response. 814 IPR, Paper 6. We instituted an *inter partes* review of the challenged claims. 814 IPR, Paper 12 ("814 Inst. Dec.").

After institution, pursuant to our order consolidating briefing (Paper 19), the parties filed consolidated papers in IPR2019-00810, IPR2019-00811, IPR2019-00812, IPR2019-00813, and IPR2019-00814. Patent Owner filed a Patent Owner Response (Paper 22, "PO Resp."), Petitioner filed a Reply to Patent Owner Response (Paper 30, "Pet. Reply"), and Patent Owner filed a Corrected Sur-reply (Paper 40, "PO Sur-reply").

In IPR2019-00835 ("835 IPR"), Petitioner filed a Petition (835 IPR, Paper 1, "835 Pet.") requesting an *inter partes* review of claims 1, 20, 21, 26–35, and 45–49 of the '560 patent. Patent Owner filed a Preliminary Response. 835 IPR, Paper 6. We instituted an *inter partes* review of the challenged claims. 835 IPR, Paper 9 ("835 Inst. Dec.").

In IPR2019-00836 ("836 IPR"), Petitioner filed a Petition (836 IPR, Paper 1, "836 Pet.") requesting an *inter partes* review of claims 1, 5–13, 22–

25, and 50–55 of the '560 patent. Patent Owner filed a Preliminary Response. 836 IPR, Paper 6. We instituted an *inter partes* review of the challenged claims. 836 IPR, Paper 9 ("836 Inst. Dec.").

After institution, pursuant to our order consolidating briefing (835 IPR, Paper 16), the parties filed consolidated papers in IPR2019-00835, IPR2019-00836, and IPR2019-00837. Patent Owner filed a Patent Owner Response (835 IPR, Paper 19, "835 PO Resp."), Petitioner filed a Reply (835 IPR, Paper 27, "835 Pet. Reply"), and Patent Owner filed a Sur-reply (835 IPR, Paper 32, "835 PO Sur-reply").

A consolidated oral hearing in IPR2019-00810, IPR2019-00811, IPR2019-00812, IPR2019-00813, IPR2019-00814, IPR2019-00835, IPR2019-00836, and IPR2019-00837 was held on July 27, 2020 and July 28, 2020, and a copy of the hearing transcript has been entered into the record. Paper 43 ("Tr.").

We issued Final Written Decisions in these IPRs, concluding that Petitioner had demonstrated by a preponderance of the evidence that some challenged claims are unpatentable. *See* 810 Final Dec. 167–168; 811 Final Dec. 151–152; 814 Final Dec. 171–172; 835 Final Dec. 153; 836 Final Dec. 143.

In the 810 IPR, we determined that (1) Petitioner had shown that claims 1, 4–7, and 15 of the '115 patent are unpatentable over Kiss[3] and FIPA97[4]; (2) Petitioner had not shown that claims 8–10, 29–32, and 38 of the '115 patent are unpatentable over Kiss and FIPA97; (3) Petitioner had

[3] U.S. Patent No. 6,484,155 B1 (filed July 21, 1999; provisional filed July 21, 1998) (Ex. 1005, "Kiss").

[4] FIPA 97 Version 1.0 Specification (Oct. 10, 1997) (Exs. 1006–1012, "FIPA97").

shown that claims 7 and 16 of the '115 patent are unpatentable over Kiss, FIPA97, and Cheyer[5]; and (4) Petitioner had not shown that claim 39 of the '115 patent is unpatentable over Kiss, FIPA97, and Cheyer. 810 Final Dec. 167–168.

In the 811 IPR, we determined that (1) Petitioner had shown that claims 1 and 26–28 of the '115 patent are unpatentable over Kiss and FIPA97; (2) Petitioner had not shown that claims 29, 33, 45–47, and 86–89 of the '115 patent are unpatentable over Kiss and FIPA97; (3) Petitioner had shown that claims 12–14 of the '115 patent are unpatentable over Kiss, FIPA97, and Moran[6]; and (4) Petitioner had not shown that claims 35–37 of the '115 patent is unpatentable over Kiss, FIPA97, and Moran. 811 Final Dec. 151–152.

In the 814 IPR, we determined that (1) Petitioner had shown that claims 61, 62, and 70–85 of the '115 patent are unpatentable over Kiss and FIPA97; (2) Petitioner had not shown that claim 63 of the '115 patent is unpatentable over Kiss and FIPA97; and (3) Petitioner had shown that claims 64–70, 84, and 85 of the '115 patent are unpatentable over Kiss, FIPA97, and Cohen[7]. 814 Final Dec. 171–172.

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[5] Adam Cheyer, *MVIEWS: Multimodal Tools for the Video Analyst*, PROCEEDINGS OF 1998 INTERNATIONAL CONFERENCE ON INTELLIGENT USER INTERFACES 55 (1998) (Ex. 1015, "Cheyer").

[6] Douglas B. Moran, et al., *Multimodal User Interfaces in the Open Agent Architecture*, PROCEEDINGS OF 1997 INTERNATIONAL CONFERENCE ON INTELLIGENT USER INTERFACES 61 (1997) (Ex. 1013, "Moran").

[7] Cohen et al., *An Open Agent Architecture*, 1994 Association for the Advancement of Artificial Intelligence Spring Symposia on March 21–23, 1994 (814 IPR, Ex. 1014, "Cohen").

In the 835 IPR, we determined that (1) Petitioner had shown that claims 1, 20, 21, 26, 27, and 45–49 of the '560 patent are unpatentable over Kiss and FIPA97; (2) Petitioner had not shown that claim 28 of the '560 patent is unpatentable over Kiss and FIPA97; (3) Petitioner had shown that claims 20, 21, and 29–35 of the '560 patent are unpatentable over Kiss, FIPA97, and Cohen; and (4) Petitioner had not shown that claim 28 of the '560 patent is unpatentable over Kiss, FIPA97, and Cheyer. 835 Final Dec. 153.

In the 836 IPR, we determined that (1) Petitioner had shown that claims 1, 5–9, 12, 13, 22–25, and 52 of the '560 patent are unpatentable over Kiss and FIPA97; and (2) Petitioner had not shown that claims 10, 11, 50, 51, and 53–55 of the '560 patent are unpatentable over Kiss and FIPA97. 836 Final Dec. 143.

On appeal, the Federal Circuit affirmed all of our determinations of unpatentability of challenged claims. *See Microsoft*, 2022 WL 989403, at *1. The Federal Circuit also affirmed our "determination of no proven unpatentability of claims 29–47 of the '115 patent and claims 50–51 and 53–55 of the '560 patent." *Id.*

The Federal Circuit reversed certain findings we made in concluding that claims 8–10, 63, and 86–89 of the '115 patent and claims 10, 11, and 28 of the '560 patent had not been proven unpatentable and remanded for further consideration of those claims. *Id.* Upon our authorization (Paper 45), the parties filed additional briefing limited to addressing the remanded claims. *See* Petitioner's Remand Opening Brief (Paper 50, "Pet. Remand Opening Br."), Patent Owner's Remand Opening Brief (Paper 51, "PO Remand Opening Br."), Petitioner's Remand Response Brief (Paper 53,

"Pet. Remand Resp. Br."), Patent Owner's Remand Response Brief (Paper 52, "PO Remand Resp. Br.").

Analyzing the full record in view of the Federal Circuit's directives, we address below the remaining grounds at issue based on Kiss and FIPA97, as summarized in the following tables.

810 IPR ('115 Patent):

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
8–10	§ 103(a)[8]	Kiss, FIPA97

811 IPR ('115 Patent):

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
86–89	§ 103(a)	Kiss, FIPA97

814 IPR ('115 Patent):

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
63	§ 103(a)	Kiss, FIPA97

835 IPR ('560 Patent):

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
28	§ 103(a)	Kiss, FIPA97
28	§ 103(a)	Kiss, FIPA97, Cheyer

[8] The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) ("AIA"), amended 35 U.S.C. § 103. Because both the '115 patent and the '560 patent have an effective filing date prior to the effective date of the applicable AIA amendment, we refer to the pre-AIA version of § 103.

836 IPR ('560 Patent):

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
10, 11	§ 103(a)	Kiss, FIPA97

B. Overview of the '115 Patent and '560 Patent

The '115 patent describes "software-based architectures for communication and cooperation among distributed electronic agents." Ex. 1001, 1:27–29. Figure 4 of the '115 patent is reproduced below.

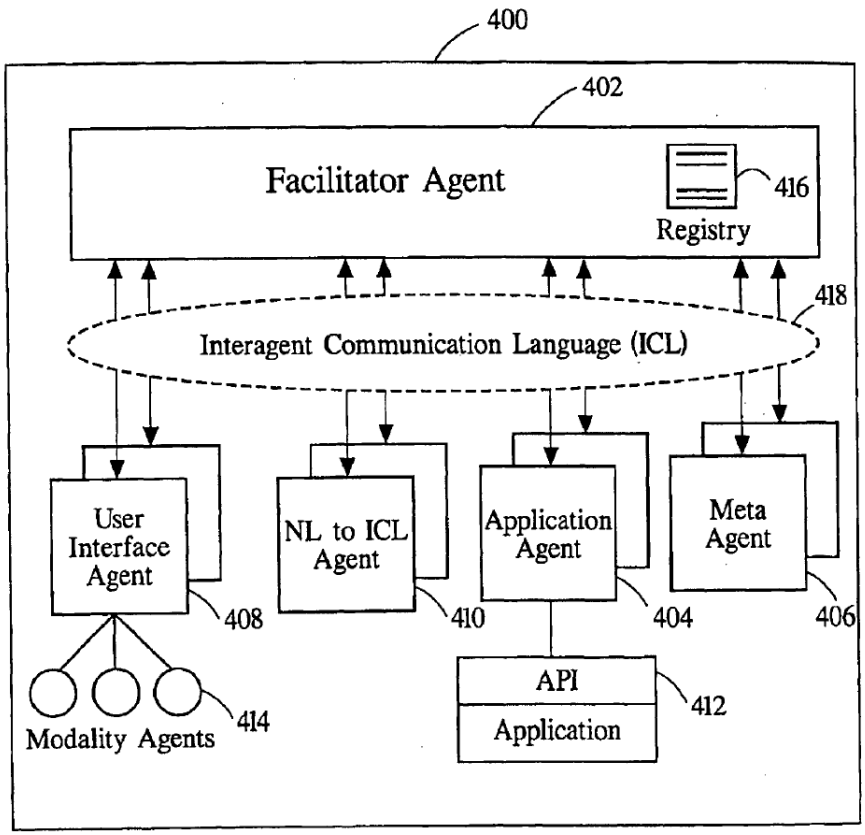


Fig. 4

Figure 4 depicts the structure of an exemplary distributed agent system of the '115 patent. *Id.* at 6:25–32. As shown in Figure 4, system 400 includes facilitator agent 402, user interface agents 408, application agents 404, and

meta-agents 406. *Id.* at 6:25–28. The '115 patent describes that system 400 is organized "as a community of peers by their common relationship" to facilitator agent 402 (*id.* at 6:28–30), which is "a specialized server agent that is responsible for coordinating agent communications and cooperative problem-solving" (*id.* at 6:32–35).

According to the '115 patent, cooperation among agents is structured around a three-part approach as follows: (1) providers of services register their capabilities specifications with a facilitator; (2) requesters of services construct goals and relay them to the facilitator; and (3) the facilitator coordinates the efforts of the appropriate service providers in satisfying these goals. *Id.* at 10:42–47. The '115 patent describes that cooperation among agents is achieved via messages expressed in a common language, called the Interagent Communication Language ("ICL"). *Id.* at 10:40–48.

Referencing Figure 3 (not reproduced herein) and Figure 4, the '115 patent describes the operation of a distributed agent system in a preferred embodiment. *Id.* at 7:13–39. The '115 patent describes that, when invoked, a client agent makes a connection to a facilitator, e.g., facilitator agent 402, and registers with the facilitator a specification of the capabilities and services it can provide. *Id.* at 7:15–21. For example, a natural language agent may register the characteristics of its available natural language vocabulary. *Id.* at 7:21–23. When facilitator agent 402 receives a service request and determines that registered services 416 of one of its client agents will help satisfy a goal of the request, the facilitator sends that client a request expressed in ICL 418. *Id.* at 7:25–29. The client agent parses this request, processes it, and returns answers or status reports to the facilitator. *Id.* at 7:30–32.

Referencing Figures 5 and 6 (not reproduced herein), the '115 patent describes an exemplary embodiment where user interface agent 408 runs on a user's laptop, accepting user input, sending requests to facilitator agent 402 for delegation to appropriate agents, and displaying the results of the distributed computation. *Id.* at 7:53–63. As illustration, the '115 patent describes that, when the question "What is my schedule?" is entered on user interface (UI) 408, UI 408 sends the request to facilitator agent 402, which in turn asks natural language (NL) agent 426 to translate the query into ICL. *Id.* at 8:4–8. The translated ICL expression is then routed by facilitator agent 402 to appropriate agents, e.g., calendar agent 434, to execute the request. *Id.* at 8:13–15. Finally, results are sent back to UI agent 408 for display. *Id.* at 8:15–16.

The '560 patent is a continuation of the '115 patent. IPR 835, Ex. 1001, code (63). The written description of the '560 patent is substantially the same as that of the '115 patent, the relevant portions of which are described above.

C. Illustrative Claims

Of the challenged claims in the 810 IPR and 811 IPR, claims 1, 29, and 86 are independent. Claims 1 and 86 are illustrative of the subject matter of the challenged claims remaining at issue on remand and are reproduced below.

> 1. A computer-implemented method for communication and cooperative task completion among a plurality of distributed electronic agents, comprising the acts of:
>
> registering a description of each active client agent's functional capabilities as corresponding registered functional capabilities, using an expandable, platform-independent, inter-agent language, wherein the inter-agent language includes:

a layer of conversational protocol defined by event types and parameter lists associated with one or more of the events, wherein the parameter lists further refine the one or more events;

a content layer comprising one or more of goals, triggers and data elements associated with the events;

receiving a request for service as a base goal in the inter-agent language, in the form of an arbitrarily complex goal expression; and

dynamically interpreting the arbitrarily complex goal expression, said act of interpreting further comprising:

generating one or more sub-goals expressed in the inter-agent language;

constructing a goal satisfaction plan wherein the goal satisfaction plan includes:

a suitable delegation of sub-goal requests to best complete the requested service request—by using reasoning that includes one or more of domain-independent coordination strategies, domain-specific reasoning, and application-specific reasoning comprising rules and learning algorithms; and

dispatching each of the sub-goals to a selected client agent for performance, based on a match between the sub-goal being dispatched and the registered functional capabilities of the selected client agent.

Ex. 1001, 29:10–44.

86. A data wave carrier providing a transport mechanism for information communication in a distributed computing environment having at least one facilitator agent and at least one active client agent, and an Interagent Communication Language (ICL), wherein the ICL includes:

a layer of conversational protocol defined by event types and parameter lists associated with one or more of the events, wherein the parameter lists further refine the one or more events; and

a content layer comprising one or more of goals, triggers and data elements associated with the events;

> wherein said at least one facilitator agent is operable to construct a goal satisfaction plan by using reasoning that includes one or more of domain-independent coordination strategies, domain-specific reasoning, and application-specific reasoning comprising rules and learning algorithms for satisfying one or more requests for service from said at least one active client agent, the data wave carrier comprising a signal representation of an inter-agent language description of an active client agent's functional capabilities.

Id. at 37:10–38:7.

Of the challenged claims in the 814 IPR, claims 61 and 71 are independent. Claim 61 is illustrative of the challenged claims and is reproduced below.

> 61. A facilitator agent arranged to coordinate cooperative task completion within a distributed computing environment having a plurality of autonomous service-providing electronic agents, the facilitator agent comprising:
>
> an agent registry that declares capabilities of service-providing electronic agents currently active within the distributed computing environment; and
>
> a facilitating engine operable to parse a service requesting order to interpret a compound goal set forth therein,
>
> the compound goal including both local and global constraints and control parameters, the service request formed according to an Interagent Communication Language (ICL),
>
> wherein the ICL includes: a layer of conversational protocol defined by event types and parameter lists associated with one or more of the events, wherein the parameter lists further refine the one or more events; and a content layer comprising one or more of goals, triggers and data elements associated with the events; and
>
> the facilitating engine further operable to construct a goal satisfaction plan
>
> by using reasoning that includes one or more of domain-independent coordination strategies, domain-specific reasoning, and

> application-specific reasoning comprising rules and learning algorithms.

Ex. 1001, 35:4–28.

Of the challenged claims in the 835 IPR and 836 IPR, claims 1, 22, 26, 47, 50, 52, and 53 are independent. Claims 1 and 26 are illustrative and reproduced below.

> 1. A software-based, flexible computer architecture for communication and cooperation among distributed electronic agents, the architecture contemplating a distributed computing system comprising:
>
> a plurality of service-providing electronic agents;
>
> a distributed facilitator agent functionally distributed across at least two computer processes, the facilitator agent capable of bi-directional communications with the plurality of service-providing electronic agents, the facilitator agent including:
>
> an agent registry that declares capabilities for each of the plurality of service-providing electronic agents currently active within the distributed computing environment; and
>
> a facilitating engine operable to interpret a service request as a base goal, the facilitating engine further operable for generating a goal satisfaction plan associated with the base goal, wherein the goal satisfaction plan involves:
>
> using reasoning to determine sub-goal requests based on non-syntactic decomposition of the base goal and using said reasoning to co-ordinate and schedule efforts by the service-providing electronic agents for fulfilling the sub-goal requests in a cooperative completion of the base goal; and
>
> wherein the plurality of service-providing electronic agents and the distributed facilitator agent communicate using an interagent Communication Language (ICL), wherein the ICL includes:
>
> a layer of conversational protocol defined by event types and parameter lists associated with one or more of the

> events, wherein the parameter lists further refine the one or more events.

835 IPR, Ex. 1001, 29:58–30:23.

> 26. A distributed facilitator agent functionally distributed across at least two computer processes, the distributed facilitator agent arranged to coordinate cooperative task completion within a distributed computing environment having a plurality of autonomous service-providing electronic agents, the distributed facilitator agent comprising:
>
> an agent registry that declares capabilities of service-providing electronic agents currently active within the distributed computing environment; and
>
> a facilitating engine operable to parse a service request in order to interpret a compound goal set forth therein, the service request formed according to an Interagent Communication Language (ICL), the ICL including a layer of conversational protocol defined by event types and parameter lists associated with one or more of the events, wherein the parameter lists further refine the one or more events, the facilitating engine further operable to generate a goal satisfaction plan associated with the compound goal, wherein the goal satisfaction plan involves:
>
> using reasoning to determine sub-goal requests based on non-syntactic decomposition of the base goal and using said reasoning to co-ordinate and schedule efforts by the service-providing electronic agents for fulfilling the sub-goal requests in a cooperative completion of the base goal.

835 IPR, Ex. 1001, 32:26–51.

D. Testimonial Evidence

In support of its unpatentability contentions in the 810 IPR, Petitioner relies on a declaration of Dr. Henry Lieberman (Ex. 1003) and a declaration of Dr. Timothy Finin (Ex. 1049). In support of its Patent Owner Response in the 810 IPR, Patent Owner relies on the Declaration of Dr. Nenad

Medvidovic (Ex. 2032) and the Declaration of Dr. Philip R. Cohen (Ex. 2033). Patent Owner cross-examined Dr. Lieberman and Dr. Finin via deposition. Exs. 2013, 2014. Petitioner cross-examined Dr. Medvidovic via deposition. Ex. 1129.

In support of its unpatentability contentions in the 811 IPR, Petitioner relies on a declaration of Dr. Henry Lieberman (811 IPR, Ex. 1003) and a declaration of Dr. Timothy Finin (811 IPR, Ex. 1049). In support of its Patent Owner Response in the 811 IPR, Patent Owner relies on the Declaration of Dr. Nenad Medvidovic (811 IPR, Ex. 2032) and the Declaration of Dr. Philip R. Cohen (811 IPR, Ex. 2033). Patent Owner cross-examined Dr. Lieberman and Dr. Finin via deposition. 811 IPR, Exs. 2013, 2014. Petitioner cross-examined Dr. Medvidovic via deposition. 811 IPR, Ex. 1129.

In support of its unpatentability contentions in the 814 IPR, Petitioner relies on a declaration of Dr. Henry Lieberman (814 IPR, Ex. 1003) and a declaration of Dr. Timothy Finin (814 IPR, Ex. 1049). In support of its Patent Owner Response in the 814 IPR, Patent Owner relies on the Declaration of Dr. Nenad Medvidovic (814 IPR, Ex. 2032) and the Declaration of Dr. Philip R. Cohen (814 IPR, Ex. 2033). Patent Owner cross-examined Dr. Lieberman and Dr. Finin via deposition. 814 IPR, Exs. 2013, 2014. Petitioner cross-examined Dr. Medvidovic via deposition. 814 IPR, Ex. 1129.

In support of its unpatentability contentions in the 835 IPR, Petitioner relies on a declaration of Dr. Henry Lieberman (835 IPR, Ex. 1050) and a declaration of Dr. Timothy Finin (835 IPR, Ex. 1049). In support of its Patent Owner Response in the 835 IPR, Patent Owner relies on a declaration of Dr. Nenad Medvidovic (835 IPR, Ex. 2032) and a declaration of

Dr. Philip R. Cohen (835 IPR, Ex. 2033). Patent Owner cross-examined Dr. Lieberman and Dr. Finin via deposition. 835 IPR, Exs. 2068, 2069. Petitioner cross-examined Dr. Medvidovic via deposition. 835 IPR, Ex. 1129.

In support of its unpatentability contentions in the 836 IPR, Petitioner relies on a declaration of Dr. Henry Lieberman (836 IPR, Ex. 1050) and a declaration of Dr. Timothy Finin (836 IPR, Ex. 1049). In support of its Patent Owner Response in the 836 IPR, Patent Owner relies on a declaration of Dr. Nenad Medvidovic (836 IPR, Ex. 2032) and a declaration of Dr. Philip R. Cohen (836 IPR, Ex. 2033). Patent Owner cross-examined Dr. Lieberman and Dr. Finin via deposition. 836 IPR, Exs. 2068, 2069. Petitioner cross-examined Dr. Medvidovic via deposition. 836 IPR, Ex. 1129.

II. DISCUSSION

A. Relevant Principles of Law

To prevail in challenging Patent Owner's claims, Petitioner must demonstrate by a preponderance of the evidence that the claims are unpatentable. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d). "In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable." *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify "with particularity . . . the evidence that supports the grounds for the challenge to each claim")). This burden never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (citing *Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1326–27 (Fed. Cir. 2008)) (discussing the burden of proof in *inter partes* review).

A claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter 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 the subject matter pertains. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) where in evidence, so-called secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).[9]

An obviousness determination requires finding "both 'that a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve the claimed invention, and that the skilled artisan would have had a reasonable expectation of success in doing so.'" *Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1367–68 (Fed. Cir. 2016) (citation omitted); *see KSR*, 550 U.S. at 418 (holding that in an obviousness analysis, "it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does"). Further, "[t]o satisfy its burden of proving obviousness, a petitioner cannot employ mere conclusory statements. The petitioner must instead articulate specific reasoning, based on evidence of record, to support the legal conclusion of

[9] With respect to the fourth *Graham* factor, the parties in these proceedings do not present arguments or evidence regarding objective indicia of non-obviousness. Therefore, the obviousness analysis below is based on the first three *Graham* factors.

obviousness." *In re Magnum Oil Tools Int'l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016).

B. Level of Ordinary Skill in the Art

In the Final Written Decisions, we determined that a person of ordinary skill in the art at the time of the claimed invention would have had "a Bachelor's degree in Computer Science or equivalent field and at least two years of work experience in design and development of distributed systems, software specification languages, or a related area." 810 Final Dec. 12; 811 Final Dec. 12; 814 Final Dec. 11; 835 Final Dec. 12; 836 Final Dec. 12. We see no reason to depart from this determination, which the parties did not challenge on appeal.

C. Claim Construction

In the Final Written Decisions in the 810 IPR and 835 IPR, we construed the claim term "process characteristics" recited in claim 9 of the '115 patent and claim 28 of the '560 patent to mean "characteristics of a process for an agent." 810 Final Dec. 23–26; 835 Final Dec. 24–26.

In the Final Written Decisions in the 810 IPR, 811 IPR, 814 IPR, 835 IPR, and 836 IPR, we also construed the claim terms "event," "event type," "goal," "compound goal," and "goal satisfaction plan." 810 Final Dec. 13–23; 811 Final Dec. 13–23; 814 Final Dec. 12–21; 835 Final Dec. 13–20; 836 Final Dec. 13–20. We additionally construed "arbitrarily complex goal expression" in the 810 IPR, 811 IPR, and 814 IPR (810 Final Dec. 13–14; 811 Final Dec. 13–14; 814 Final Dec. 12–13) and "non-syntactic decomposition of the base goal" and "computer process" in 835 IPR and 836 IPR (835 Final Dec. 13–14, 20–23; 836 Final Dec. 13, 20–23).

None of these claim constructions in the Final Written Decisions were appealed or addressed by the Federal Circuit. *See Microsoft*, 2022 WL 989403. Considering the full record, we see no reason to depart from the claim constructions provided in the Final Written Decisions and, therefore, maintain the same claim constructions for purposes of this Remand Decision.

The Federal Circuit reversed the Board's "implicit claim construction" of the term "advisory suggestions." *Microsoft*, 2022 WL 989403, at *9–10. We address the construction of this term in the context of the patentability analysis of claims 10 and 11 of the '560 patent below.

We additionally address claim construction of the terms "trigger," "trigger declaration," and "data wave carrier" in the context of the patentability analysis of claims 8 and 86 of the '115 patent below.

No other claim terms, beyond those terms noted above, need to be construed expressly for purposes of this Remand Decision. *See Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (holding that only terms that are in controversy need to be construed, and "only to the extent necessary to resolve the controversy"); *see also Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (applying *Vivid Techs.* in the context of an *inter partes* review).

D. Prior Art Overview

1. Overview of Kiss (Ex. 1005)

Kiss describes "a knowledge management system that supports inquiries of distributed knowledge resources," as illustrated in Figure 1. Ex. 1005, 2:44–45. Figure 1 of Kiss is reproduced below.

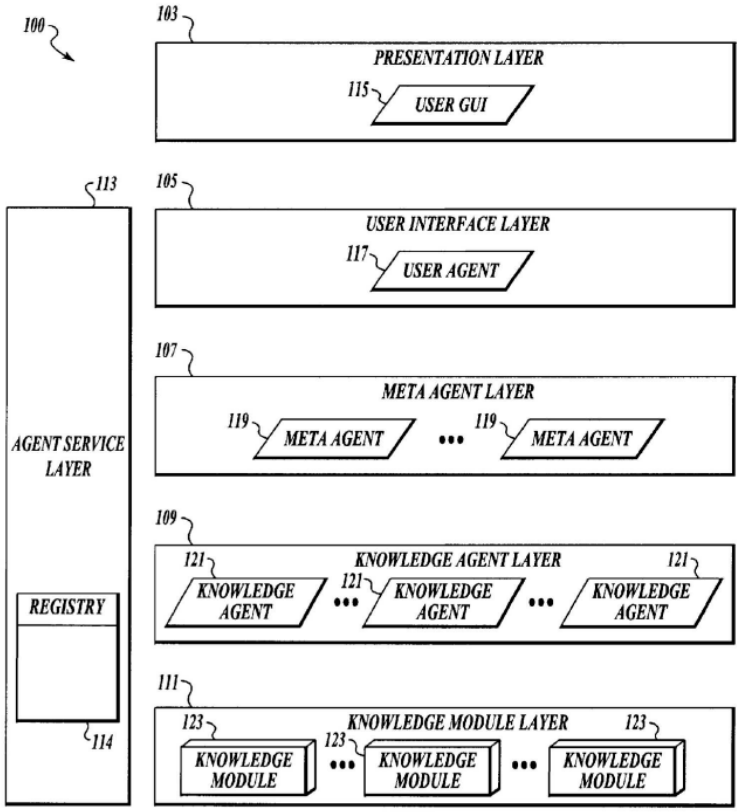


Fig. 1

Kiss's Figure 1 shows a conceptual overview of one embodiment of a knowledge management system. *Id.* at 5:1–2. Kiss's knowledge management system 100 includes a presentation layer 103, a user interface layer 105, a meta agent layer 107, a knowledge agent layer 109, a knowledge module layer 111, and an agent service layer 113. *Id.* at 5:3–7.

The meta agent layer 107 includes one or more meta agents 119 that are responsible for analyzing queries or problem formulations provided by the user interface layer 105 and constructing a plan for finding a solution to the problem. *Id.* at 5:20–24. More specifically, "meta agent 119 is responsible for formulating a dynamic 'solution plan' for the distributed inferencing to be performed by the system 100, and allocates tasks to the knowledge agent layer 109 in furtherance of the solution plan." Ex. 1005,

5:33–37. "The meta agent solution plan attempts to employ all elements of information contained in the parsed inquiry in the development of search-space constraints." *Id.* at 8:34–37.

The knowledge agent layer 109 includes multiple knowledge agents 121, each of which may be associated with one or more knowledge modules 123 in the knowledge module layer 111. Ex. 1005, 6:31–35. The knowledge agent 121 is configured to accept from a meta agent 119 a problem statement and convert that problem statement into a format appropriate for the knowledge module 123 associated with the knowledge agent 121. *Id.* at 6:35–38.

2. Overview of FIPA97 (Exs. 1006–1012)

FIPA97 (Exs. 1006–1012) is a specification created by the Foundation for Intelligent Physical Agents (FIPA) beginning in 1996 with an official release date in October 1997. Ex. 1006, Cover, iv (identifying specification as FIPA 97 Version 1.0 issued on October 10, 1997). FIPA97 is a "specification of basic agent technologies that can be integrated by agent systems developers to make complex systems with a high degree of interoperability." *Id.* at v. The specification comprises seven parts: three parts for basic agent technologies (Parts 1–3 relating to agent management, agent communication language, and agent/software integration) and four informative applications providing examples of how the technologies can be applied (Parts 4–7 describing personal travel assistance, personal assistant, audio-visual entertainment, and broadcasting and network management and provisioning applications). *Id.* at v–vii; *see generally* Exs. 1006–1008 (Parts 1–3), Exs. 1009–1012 (Parts 4–7).

Part 1 of FIPA97 "provides a normative framework within which FIPA compliant agents can exist, operate and be managed." Ex. 1006, vi. Part 2 of FIPA97 describes an "Agent Communication Language (ACL)" that "is based on speech act theory: messages are actions, or communicative acts, as they are intended to perform some action by virtue of being sent." *Id.* The ACL specification "consists of a set of message types and the description of their pragmatics, [i.e.,] the effects on the mental attitudes of the sender and receiver agents." *Id.* The ACL specification "also provides the normative description of a set of high-level interaction protocols, including requesting an action, contract net and several kinds of auctions." *Id.*

Part 2 of FIPA97 discloses a "simple abstract model of inter-agent communication" including ACL messages having components as illustrated in Figure 1 below. Ex. 1007, 7, 12.

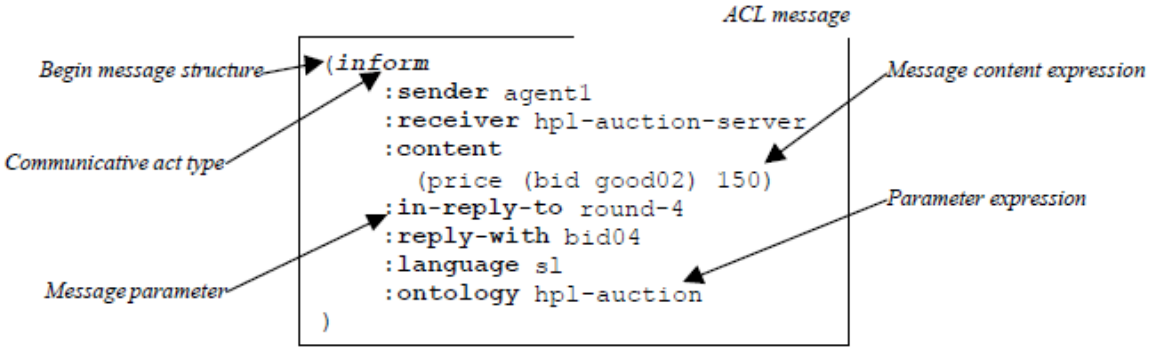


Figure 1 — Components of a message

Figure 1, above, illustrates the main structural elements of an ACL message in FIPA97. *Id.* at 12. "The first element of the message is a word which identifies the communicative act being communicated, which defines the principal meaning of the message." *Id.* Each ACL message contains a set of one or more parameters, including a mandatory "*:receiver*" parameter that identifies the intended recipient of the message. *Id.* at 13.

E. Claims 8–10 and 63 of the '115 Patent and Claim 28 of the '560 Patent

Regarding claims 8–10 and 63 of the '115 patent and claim 28 of the '560 patent, we found in the Final Written Decisions in the 810 IPR, 814 IPR, and 835 IPR that Petitioner did not present sufficient evidence to show how or why a person of ordinary skill in the art would have combined Kiss and FIPA97 to obtain the recited subject matter of these claims. 810 Final Dec. 145–149; 814 Final Dec. 135; 835 Final Dec. 108. On appeal, the Federal Circuit reversed our finding and remanded "for the Board to address any remaining obviousness disputes concerning these claims." *Microsoft*, 2022 WL 989403, at *3–5.

On remand, Patent Owner appears to disagree with the Federal Circuit's decision and argues that Petitioner failed to show how a person of ordinary skill in the art would have combined Kiss and FIPA97. PO Remand Opening Br. 2–9; PO Remand Resp. Br. 2. In response, Petitioner argues Patent Owner's argument is improper because the mandate rule "prevents parties from raising issues on remand that were within the scope of the judgment appealed from and resolved by the appellate court." Pet. Remand Resp. Br. 3–4 (citing *Engel Indus., Inc. v. Lockformer Co.*, 166 F.3d 1379, 1383 (Fed. Cir. 1999)). Petitioner further argues that the Federal Circuit has expressly resolved the question of whether the Petition has sufficiently set forth "the '*how*' and '*why*' of the cited combination" in favor of Petitioner and, therefore, we should not address or revisit the issue on remand. *Id.* at 7.

We agree with Petitioner's argument. We disagree with and reject Patent Owner's argument in its remand papers directed to Petitioner's reasons for the cited combination as being inconsistent with the Federal Circuit's decision, which determined that Petitioner has shown sufficiently

how and why a person of ordinary skill in the art would have combined Kiss and FIPA97 to obtain the subject matter recited in claims 8–10 and 63 of the '115 patent and claim 28 of the '560 patent. *See Microsoft*, 2022 WL 989403, at *3–5.

Pursuant to the Federal Circuit's decision and mandate, we address below the remaining obviousness disputes concerning claims 8–10 and 63 of the '115 patent and claim 28 of the '560 patent. In the Final Written Decisions in the 810 IPR, 814 IPR, and 835 IPR, we did not reach the issue of whether Petitioner has shown sufficiently that the cited combination teaches or suggests all limitations of these claims. *See* 810 Final Dec. 144–149; 814 Final Dec. 132–135; 835 Final Dec. 106–109. We do so now and address the parties' disputes regarding the teachings of the cited prior art as they relate to the limitations recited in claims 8–10 and 63 of the '115 patent and claim 28 of the '560 patent.

1. Claim 8 of the '115 Patent

Claim 8 depends from claim 5 and further recites "wherein the agent registry data structure includes at least one trigger declaration for one active agent." Ex. 1001, 30:10–12. Claim 5 in turn depends from claim 1. *Id.* at 30:1–3. In the Final Written Decision in the 810 IPR, we determined that Petitioner had demonstrated by a preponderance of the evidence that claims 1 and 5 are unpatentable under 35 U.S.C. § 103(a) over the combination of Kiss and FIPA97. 810 Final Dec. 137, 143. As noted above, this determination has been affirmed by the Federal Circuit on appeal. *See Microsoft*, 2022 WL 989403, at *1. Thus, on remand, although claim 8 incorporates all of the limitations of claims 1 and 5 from which it depends (*see* 35 U.S.C. § 112, ¶ 4), we only need to address the question of

whether the proposed combination of Kiss and FIPA97 teaches or suggests the additionally recited limitation of claim 8.

In the Petition, Petitioner asserted that FIPA97 teaches the additionally recited limitation of claim 8. Pet. 60–61.[10] According to Petitioner, the Guide Agent ("GA") and "preconditions2" disclosed in FIPA97 teaches the "agent registry" and "trigger declaration" recited in claim 8, respectively. *Id.* (citing Ex. 1011, 21; Ex. 1003 ¶¶ 374–376). Petitioner further relied on FIPA97's disclosure of a contract-net called FIPA-AVEB-Request-Notification as teaching "the agent registry data structure" that "includes at least one trigger declaration for one active agent," as recited in claim 8. *Id.* (citing Ex. 1011, 10, 11, 21; Ex. 1007, 46; Ex. 1003 ¶¶ 372–376).

In a cited paragraph of his Declaration, Dr. Lieberman explained that "[a] contract net is a method for multiple agents to negotiate with a given 'man[a]ger agent' and optimize how a given protocol will be conducted, while taking into account the various variable and costs in a given system" and that "[t]he agents of the Audio/Video Entertainment and Broadcasting system disclosed in part 6 of FIPA97 uses contract nets to determine which agents are best utilized to facilitate a given protocol." Ex. 1003 ¶ 372 (citing Ex. 1007, 46; Ex. 1011, 21).

Citing FIPA97's disclosure of the FIPA-AVEB-Request-Notification contract-net, Dr. Lieberman further explained that the disclosed contract-net represents a negotiation between the Control Agent ("CA") and the GA, where "[t]he GA is responsible for the creation and management of a content index, and uses this index to respond to requests from the CA." *Id.* ¶ 373

[10] As noted above, claim 8 of the '115 patent is at issue only in the 810 IPR.

(citing Ex. 1011, 11 (describing that the GA "[g]ets requests from CA, returning the desired list of content(s)" and "controls and monitors the creation/update of content index")). According to Dr. Lieberman, the FIPA-AVEB-Request-Notification contract-net "is used to get notifications about the status and services of a specific [Audio/Video] program, and will automatically terminate after the program's end time." *Id.* ¶ 374 (citing Ex. 1011, 21). Dr. Lieberman further opined that in FIPA97 the CA may set a precondition (e.g., "preconditions2") within the GA and "[t]he GA will then monitor for changes over a given time period ('Deadline') and inform the CA of any changes that conform to the precondition within that period." *Id.* (citing Ex. 1011, 21). According to Dr. Lieberman, a person of ordinary skill in the art would have understood that "this functionality is available for every active agent, so that the agent registry must include declaration functionality" for such preconditions. *Id.*

Regarding the limitations of claim 8, Dr. Lieberman opined that the ordinary meaning of a "trigger" is "a general mechanism for requesting some action be taken when one or more conditions is met" and that the ordinary meaning of a "trigger declaration" is "a statement in a program that specifies the characteristics of a trigger." Ex. 1003 ¶ 371. Relying on these interpretations, Dr. Lieberman opined that setting "preconditions2" within the GA (the claimed "agent registry") in FIPA97 teaches a "trigger declaration" within the "agent registry" that relates to the status of "one active agent," as recited in claim 8. *Id.* ¶ 374.

In its remand papers, Petitioner relies on the same interpretations of "trigger" and "trigger declaration" recited in claim 8. Pet. Remand Opening Br. 2 (citing Ex. 1003 ¶ 371). Petitioner's remand brief also presents essentially the same arguments regarding how FIPA97 teaches the

limitations of claim 8 as those presented in Petitioner's trial papers. *See id.* at 2–3 (citing Ex. 1011, 10, 11, 14, 21; Ex. 1007, 46; Ex. 1003 ¶¶ 372–376). In particular, Petitioner argues that the statement setting a precondition "preconditions2" within the content index of GA teaches a "trigger declaration" recited in claim 8. *Id.* at 3 (citing Ex. 1003 ¶¶ 374–376).

We first address Petitioner's and Dr. Lieberman's proposed interpretation of the claim terms "trigger" and "trigger declaration" recited in claim 8. During trial, Patent Owner did not dispute these claim constructions in the Patent Owner Response or the Corrected Sur-reply. *See* PO Resp. 112; *see generally* PO Sur-reply. Nor does Patent Owner dispute these constructions in its remand papers. *See generally* PO Remand Opening Br., PO Remand Resp. Br.

In the context of claim 1 from which claim 8 depends, Petitioner argued in the Petition that a "trigger" recited in claim 1 (*see* Ex. 1001, 29:10–24) is "a general mechanism for requesting some action be taken when one or more conditions is met." Pet. 11 (citing Ex. 1001, 21:21–22:31; Ex. 1003 ¶¶ 80–81). Patent Owner did not dispute Petitioner's proposed meaning of "trigger" recited in claim 1. *See* PO Resp. 24–38. In the Final Written Decision in the 810 IPR, we adopted this undisputed interpretation of "trigger" because the construction is consistent with the disclosure in the Specification. 810 Final Dec. 120 (citing Ex. 1001, 21:22–24 ("triggers [provide] a general mechanism for requesting some action be taken when a set of conditions is met")). This claim construction was not appealed and, as noted above, the Federal Circuit did not address the construction of this claim term. *See Microsoft*, 2022 WL 989403. Considering the full record, we see no reason to depart from the claim construction of the term "trigger"

of claim 1 adopted in the Final Written Decision and, therefore, we maintain the same claim construction for purposes of this Remand Decision.

Petitioner and Dr. Lieberman proposed the same interpretation for the claim term "trigger" recited in claim 8. *See* Ex. 1003 ¶ 371. We agree with this construction because claim 8 incorporates all of the limitations of claim 1 from which it depends and the same terms appearing in different portions of a claim should be given the same meaning absent compelling evidence to the contrary. *See Paragon Sols., LLC v. Timex Corp.*, 566 F.3d 1075, 1087 (Fed. Cir. 2009) ("We apply a presumption that the same terms appearing in different portions of the claims should be given the same meaning unless it is clear from the specification and prosecution history that the terms have different meanings at different portions of the claims." (internal quotation marks omitted) (citations omitted)); *Omega Eng'g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1334 (Fed. Cir. 2003) ("[W]e presume, unless otherwise compelled, that the same claim term in the same patent or related patents carries the same construed meaning.").

We also agree with Dr. Lieberman's proposed interpretation of the claim term "trigger declaration" as "a statement in a program that specifies the characteristics of a trigger" (Ex. 1003 ¶ 371) because the construction is consistent with the disclosure in the Specification. *See* Ex. 1001, 17:5–9 ("Each registered agent may be optionally associated with one or more triggers, which preferably could be referenced through their associated Trigger Declaration fields 712 in the parent facilitator Agent Registry 702."); *see also* Ex. 1003 ¶ 374 (citing Ex. 1001, 17:5–9, Fig. 7).

Turning next to the question of whether FIPA97 teaches or suggests the additionally recited limitation of claim 8, Patent Owner argued in the Patent Owner Response that "[t]here is nothing in the cited pages of FIPA97

that shows that a trigger declaration [i]s a field in the agent registry *data structure*." PO Resp. 112 (emphasis added) (citing Ex. 2032 ¶ 188).

Patent Owner's argument is unavailing because, as discussed above, Dr. Lieberman persuasively explained that in FIPA97's FIPA-AVEB-Request-Notification contract-net "[t]he GA is responsible for the creation and management of a content index, and uses this index to respond to requests from the CA" (Ex. 1003 ¶ 373 (citing Ex. 1011, 11)) and that a person of ordinary skill in the art would have understood that, for the GA to monitor for changes over a given time period and inform the CA of any changes to the status of a specific AV program that conform to a precondition "preconditions2" within that period, "the agent registry must include declaration functionality" for preconditions relating to the status of AV programs (*id.* ¶ 374). We are persuaded that the cited disclosures of FIPA97 at least would have suggested to a person of ordinary skill in the art that the GA's context index (the claimed "agent registry data structure") includes a statement of a precondition relating to a specific AV program listed in the content index.

In its remand paper, Patent Owner argues that "nothing in Part 6 FIPA97 explicitly teaches that a precondition2 is stored *within* a General Agent as asserted by Petitioner." PO Remand Resp. Br. 7 (underlined emphasis added). Patent Owner's argument is unavailing because Petitioner's asserted theory of unpatentability is one of obviousness, not anticipation. Thus, Petitioner need not show "FIPA97 explicitly teaches that a precondition2 is stored *within* a [Guide] Agent," as Patent Owner demands. *See id.* For the reasons discussed above, we are persuaded that Petitioner set forth sufficient evidence in the Petition to show that the cited disclosures of FIPA97 at least would have suggested to a person of ordinary

skill in the art that the GA's context index (the claimed "agent registry data structure") includes a statement of a precondition (the claimed "trigger declaration") relating to a specific AV program listed in the content index. Thus, we determine that the Petition establishes sufficiently that FIPA97 teaches or suggests "the agent registry data structure includes at least one trigger declaration for one active agent," as recited in claim 8.

In its remand brief, Patent Owner argues that Petitioner improperly added new arguments in Petitioner's Remand Opening Brief. PO Remand Resp. Br. 6. Patent Owner's remand argument, even if correct, does not affect our determination because, for the reasons discussed above, Petitioner has set forth sufficient evidence in the Petition to show that FIPA97 teaches or suggests the additionally recited limitation of claim 8.

Accordingly, based on the full record, we determine that Petitioner has demonstrated by a preponderance of the evidence that claim 8 is unpatentable under 35 U.S.C. § 103(a) over the combination of Kiss and FIPA97.

2. Claims 9, 10, and 63 of the '115 Patent and Claim 28 of the '560 Patent

Claims 9 and 63 of the '115 patent and claim 28 of the '560 patent each recite that the agent registry includes "process characteristics for each active agent." Ex. 1001, 30:13–16, 35:35–38; IPR 835, Ex. 1001, 32:58–61. Claim 10 of the '115 patent similarly recites "at least one process characteristic for each active agent." Ex. 1001, 30:17–19.

As noted above in Section II.C (Claim Construction), in the Final Written Decisions in the 810 IPR and 835 IPR, we construed the claim term "process characteristics" recited in claim 9 of the '115 patent and claim 28 of the '560 patent to mean "characteristics of a process for an agent."

810 Final Dec. 23–26; 835 Final Dec. 24–26. In doing so, we rejected Petitioner's proposed construction of "process characteristics" to mean "additional information that may refine how a process is conducted" as departing from the claim language and lacking sufficient support from the Specification. 810 Final Dec. 23–26; 835 Final Dec. 24–26.

Petitioner did not appeal our construction of "process characteristics" as set forth in the Final Written Decisions in the 810 IPR and 835 IPR and the Federal Circuit did not address the construction of this claim term. *See Microsoft*, 2022 WL 989403.

Nonetheless, in its remand brief, Petitioner continues to argue and rely on its proposed construction of "process characteristics" as "additional information that may refine how a process is conducted," which we have rejected. *See* Pet. Remand Opening Br. 4–5, 7. Petitioner does so without explaining why it disagrees with our claim construction set forth in the Final Written Decisions or why our claim construction is erroneous. *Id.*

Considering the full record, we see no reason to depart from the claim construction of "process characteristics" provided in the Final Written Decisions and, therefore, maintain the same claim construction for purposes of this Remand Decision. We apply the same claim construction to the same claim term recited in claim 63 of the '115 patent and the similar claim term "at least one process characteristic" recited in claim 10 of the '115 patent. *See Paragon Sols.*, 566 F.3d at 1087; *Omega Eng'g*, 334 F.3d at 1334.

In its remand brief, Petitioner does not address our construction of "process characteristics" set forth in the Final Written Decisions and does not explain why the combination of Kiss and FIPA97 teaches or suggests "process characteristics" or "process characteristic" recited in claims 9, 10, and 63 of the '115 patent and claim 28 of the '560 patent under our claim

construction. Pet. Remand Opening Br. 3–5, 7. Instead, Petitioner asserts that FIPA97 teaches the recited "process characteristics" under its proposed construction of the term as "additional information that may refine how a process is conducted." *Id.* at 4, 7.

In making this argument, Petitioner points to FIPA97's disclosure of Agent Management Object "fipa-man-df-agent-description," which Petitioner argues "contains a registry parameter 'interaction[-]protocols' which '[c]haracterises the protocols supported by the agent.'" Pet. Remand Opening Br. 4 (citing Ex. 1006, 33). Petitioner asserts that the "interaction-protocols" parameter included in FIPA97's agent registry teaches the recited "process characteristics" under Petitioner's proposed construction of the term because "[t]he 'protocols' refine how the interactions with a given agent are conducted." *Id.* (citing Ex. 1003 ¶ 380). Petitioner presented essentially the same argument and evidence in the Petition. *See* Pet. 62 (citing Ex. 1006, 33; Ex. 1003 ¶ 380).

During trial, Patent Owner argued in its Patent Owner Response that FIPA97's "interaction protocols are not analogous" to the process characteristics described in the Specification, such as "machine type learning, etc." PO Resp. 114 (citing Ex. 2032 ¶ 192). In the Reply, Petitioner responded by arguing that FIPA97's "interaction-protocols" parameter is "analogous to both the Machine Type and Language examples from the specification." Pet. Reply 78.

We note, as an initial matter, that it is Petitioner's burden to explain how the challenged claims should be construed and how, as so construed, they are unpatentable. *See* 37 C.F.R. § 42.104(b)(3)–(4). Despite having been afforded an opportunity on remand to address our claim construction set forth in the Final Written Decisions, Petitioner does not address in its

remand briefs our claim construction of "process characteristics" or explain how the cited prior art teaches or suggests the limitation under our construction. *See* Pet. Remand Opening Br. 3–5, 7. Thus, Petitioner does not meet its burden to show by a preponderance of the evidence that claims 9, 10, and 63 of the '115 patent and claim 28 of the '560 patent are unpatentable over the combination of Kiss and FIPA97.

In addition, for the reasons discussed below, Petitioner's cited evidence does not show sufficiently that the cited prior art teaches or suggests "process characteristics" recited in the claims under our construction of the term—i.e., "characteristics of a process for an agent." As noted above, Petitioner argued during trial that FIPA97's "interaction-protocols" parameter is "analogous to both the Machine Type and Language examples [of Process Characteristics] from the specification." *See* Pet. Reply 78. On remand, Petitioner does not present this "similarity" argument. *See generally* Pet. Remand Opening Br., Pet. Remand Resp. Br. Although Petitioner's argument on the alleged similarity of FIPA97's "interaction-protocols" to the Specification's examples of Process Characteristics may be relevant to the question of whether FIPA97 teaches or suggests the recited "process characteristics" under our construction, we are not persuaded that Petitioner has cited sufficient evidence to show FIPA97's "interaction-protocols" parameter is analogous to the Specification's Machine Type and Language examples.

First, Petitioner did not explain during trial, nor does it explain on remand, why FIPA97's "interaction-protocols" parameter is analogous to the Machine Type and Language examples in the Specification. *See* Pet. Reply 78; *see generally* Pet. Remand Opening Br., Pet. Remand Resp. Br. In addition, Petitioner did not cite, nor does it cite on remand, any declaration

evidence from its expert to support its argument. *See* Pet. Reply 78; *see generally* Pet. Remand Opening Br., Pet. Remand Resp. Br. Petitioner's argument, therefore, is conclusory and unpersuasive as unsupported attorney argument. *See Icon Health & Fitness, Inc. v. Strava Inc.*, 849 F.3d 1034, 1046 (Fed. Cir. 2017) ("Attorney argument is not evidence or explanation in support of a conclusion."); *Invitrogen Corp. v. Clontech Lab., Inc.*, 429 F.3d 1052, 1068 (Fed. Cir. 2005) ("Unsubstantiated attorney argument regarding the meaning of technical evidence is no substitute for competent, substantiated expert testimony.").

Furthermore, Petitioner's argument is undercut, if not directly contradicted, by the disclosure in the Specification. The Specification of the '115 patent describes a "process" or "processes" as follows:

> Blackboard architectures typically allow multiple *processes* to communicate by reading and writing tuples from a global data store. Each *process* can watch for items of interest, perform computations based on the state of the blackboard, and then add partial results or queries that other *processes* can consider. Blackboard architectures provide a flexible framework for problem solving by a dynamic community of *distributed processes*.

Ex. 1001, 4:2–9 (emphases added); 835 IPR, Ex. 1001, 3:64–4:4.[11] The Specification further describes that "[s]everal research communities have approached *distributed computing* by casting it as a problem of modeling communication and cooperation among autonomous entities, or *agents*."

[11] The disclosures of the '115 patent and the '560 patent discussed in this section are essentially identical, except for the cited column and line numbers. Thus, although we refer to the Specification of the '115 patent, our discussion of the patent disclosures here applies equally to the '115 patent and the '560 patent. For completeness, citations to both patents are provided.

Ex. 1001, 4:18–21 (emphases added); 835 IPR, Ex. 1001, 4:14–17. These disclosures indicate that the '115 and '560 patents contemplate implementing agents as processes running in a distributed computing environment.

In addition, the Specification describes Process Characteristics for an agent as follows:

> Each registered *agent* may be optionally associated with one or more *Process Characteristics*, which preferably could be referenced through their associated Process Characteristics Declaration fields 716 in the parent facilitator Agent Registry 702. Note that these characteristics in certain preferred embodiments of the present invention may include one or more of the following: *Machine Type (specifying what type of computer may run the agent)*, *Language (both computer and human interface)*.

Ex. 1001, 17:12–21 (emphases added); 835 IPR, Ex. 1001, 17:35–44. Figure 7 also describes the Process Characteristics in an agent registry as "Machine Type[,] Language, etc." Ex. 1001, Fig. 7; 835 IPR, Ex. 1001, Fig. 7.

The Specification also describes "interaction protocol" as a component of communication among agents, as follows:

> Effective *communication among* independent *agents* requires four *components*: (1) a transport mechanism carrying messages in an asynchronous fashion, (2) an *interaction protocol* defining various types of communication interchange and their social implications (for instance, a response is expected of a question), (3) a content language permitting the expression and interpretation of utterances, and (4) an agreed-upon set of shared vocabulary and meaning for concepts often called an ontology).

Ex. 1001, 4:21–29 (emphases added); 835 IPR, Ex. 1001, 4:17–25.

In other words, the Specification explicitly describes "interaction protocol" as a component of communication among agents, not as a characteristic of a process for an agent. Furthermore, the Specification indicates that the drafter of the '115 patent (as well as the '560 patent) knew how to describe "interaction protocol" but did not include it as an example of Process Characteristics in the Specification, unlike the Machine Type and Language examples. *See* Ex. 1001, 17:12–21; 835 IPR, Ex. 1001, 17:35–44. Consequently, the Specification appears to contradict or undercut Petitioner's contention that FIPA97's "interaction-protocols" parameter is analogous to the Specification's Machine Type and Language examples. At a minimum, Petitioner does not cite sufficient evidence to prove its contention of the alleged "similarity" by a preponderance of the evidence.

Considering the full record, we determine that Petitioner's cited evidence does not show sufficiently that FIPA97 teaches or suggests "process characteristics" recited in claims 9, 10, and 63 of the '115 patent and claim 28 of the '560 patent under our construction of the term.

Accordingly, based on the full record, we determine that Petitioner does not demonstrate by a preponderance of the evidence that claims 9, 10, and 63 of the '115 patent and claim 28 of the '560 patent are unpatentable under 35 U.S.C. § 103(a) over the combination of Kiss and FIPA97 or that claim 28 of the '560 patent is unpatentable under 35 U.S.C. § 103(a) over the combination of Kiss, FIPA97, and Cheyer.[12]

[12] In the ground based on Kiss, FIPA97, and Cheyer in the 835 IPR, Petitioner modified its analysis of claim 28 based on Kiss and FIPA97 by relying on Cheyer instead of Kiss for teaching "data declarations" and on Cheyer instead of FIPA97 for teaching "trigger declarations." 835 Pet. 85–86; *see* 835 Final Dec. 145. Petitioner did not present arguments regarding "process characteristics" beyond those presented with respect to the ground

F. Claims 86–89 of the '115 Patent

In the Petition in 811 IPR, Petitioner asserted that claims 86–89 of the '115 patent are unpatentable under 35 U.S.C. § 103(a) over the combination of Kiss and FIPA97. 811 Pet. 63–68. In the Final Written Decision in 811 IPR, we determined that Petitioner did not establish sufficiently how the combination of Kiss and FIPA97 teaches all limitations of independent claim 86 and its dependent claims 87–89. 811 Final Dec. 138–140. In particular, we found that Petitioner did not present sufficient argument and evidence to show how the combination of Kiss and FIPA97 teaches "at least one *facilitator agent* is operable to construct a goal satisfaction plan," as recited in claim 86, because Petitioner's analysis of this limitation consists of a single sentence—"This claim element is satisfied for the same reasons described above in §VI.1.h.," which refers to Petitioner's analysis of the limitation of claim 1 that recites "constructing a goal satisfaction plan." *Id.* at 138–139. We found that claim 1 does not recite "facilitator agent" and that Petitioner did not explain in the context of its analysis of claim 1 how the combination of Kiss and FIPA97 teaches "at least one *facilitator agent* is operable to construct a goal satisfaction plan." *Id.* at 139 (citing 811 Pet. 32–54).

On appeal, the Federal Circuit reversed our finding regarding the "facilitator agent . . . operable to construct a goal satisfaction plan" limitation, finding that Petitioner's discussion of "facilitator agent" recited in the preamble of claim 86, combined with the cross-referenced discussion of claim 1 to "explain how Kiss's meta agent (part of the facilitator agent,

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based on Kiss and FIPA97. *See* 835 Pet. 85–86; Pet. Remand Opening Br. 7.

according to the petition) had the capability of constructing a goal satisfaction plan," was sufficient. *Microsoft*, 2022 WL 989403, at *8. The Federal Circuit remanded for further consideration of the obviousness merits for claims 86–89 of the '115 patent. *Id.* Pursuant to the Federal Circuit's decision and mandate, we consider below the rest of the limitations of claims 86–89 and address the merits of Petitioner's obviousness contentions.

1. Independent Claim 86 of the '115 Patent

Claim 86 is directed to a "data wave carrier providing a transport mechanism for information communication." Ex. 1001, 37:10–11. Other than the limitations reciting "data wave carrier," claim 86 recites limitations similar to corresponding limitations recited in claim 1. *Compare id.* at 29:10–44, *with id.* at 37:10–38:7.

For example, claim 1 recites an "inter-agent language" that includes "a layer of conversational protocol defined by event types and parameter lists associated with one or more of the events, wherein the parameter lists further refine the one or more events" and "a content layer comprising one or more of goals, triggers and data elements associated with the events" (*id.* at 29:16–24), and claim 86 similarly recites an "Interagent Communication Language (ICL)" which includes "a layer of conversational protocol defined by event types and parameter lists associated with one or more of the events, wherein the parameter lists further refine the one or more events" and "a content layer comprising one or more of goals, triggers and data elements associated with the events" (*id.* at 37:13–20). In another example, claim 1 recites "constructing a goal satisfaction plan wherein the goal satisfaction plan" that includes "a suitable delegation of sub-goal requests to best complete the requested service request—by using reasoning that includes

one or more of domain-independent coordination strategies, domain-specific reasoning, and application-specific reasoning comprising rules and learning algorithms" (*id.* at 29:32–39) and claim 86 similarly recites "construct a goal satisfaction plan by using reasoning that includes one or more of domain-independent coordination strategies, domain-specific reasoning, and application-specific reasoning comprising rules and learning algorithms for satisfying one or more requests for service from said at least one active client agent" (*id.* at 37:22–38:5).

In the 811 Petition, Petitioner's analysis of claim 86 largely relied on its analysis of claim 1, citing the sections of the 811 Petition addressing similar limitations recited in claim 1. *See* 811 Pet. 63–66 (citing 811 Pet. §§ VI.1.a, VI.1.b(ii), VI.1.c, VI.1.d, VI.1.h, VI.1.h(iii)). Petitioner also presented the same reasons to combine Kiss and FIPA97 for both claims 1 and 86. *See id.* at 28–32. During the trial in 811 IPR, Patent Owner did not present any arguments specifically directed to claim 86 beyond its arguments directed to claim 1. *See generally* PO Resp., PO Sur-reply.

In the 811 Final Written Decision, upon weighing each of the *Graham* factors, including the objective evidence of nonobviousness, we determined that Petitioner demonstrated by a preponderance of the evidence that claim 1 is unpatentable under 35 U.S.C. § 103(a) as obvious over the combination of Kiss and FIPA97. 811 Final Dec. 91–133. As noted above, on appeal, the Federal Circuit affirmed this determination of unpatentability of claim 1. *See Microsoft*, 2022 WL 989403, at *1.

Considering the full record, we determine that Petitioner has established sufficiently that the combination of Kiss and FIPA97 teaches or suggests claim 86's limitations which are similar to corresponding limitations recited in claim 1, including an "Interagent Communication

Language (ICL)" and "construct[ing] a goal satisfaction plan." *See* 811 Pet. 65–66.

As noted above, the Federal Circuit has determined Petitioner has proven sufficiently that the combination of Kiss and FIPA97 teaches or suggests "at least one facilitator agent is operable to construct a goal satisfaction plan," as recited in claim 86. *Microsoft*, 2022 WL 989403, at *8. In what follows, we address whether the combination of Kiss and FIPA97 teaches or suggests the rest of the recitations of claim 86 that are not similarly recited in claim 1, i.e., claim 86's recitations including "data wave carrier."

The preamble of claim 86 recites "[a] data wave carrier providing a transport mechanism for information communication in a distributed computing environment." Ex. 1001, 37:10–12. The body of claim 86 recites "the data wave carrier comprising a signal representation of an inter-agent language description of an active client agent's functional capabilities." *Id.* at 38:6–8.

We first address the claim construction of the term "data wave carrier" proposed by Petitioner. In the 811 Petition, Petitioner argued that, in view of the Specification that describes "a physical transport mechanism, which is essentially a network connection," the claim term "data wave carrier" should be understood as referring to "an electromagnetic signal used to convey information ('data') over some type of network connection, such as twisted pair, Ethernet or radio wave." 811 Pet. 11 (citing Ex. 1001, 1:42–52, Fig. 1; 811 IPR, Ex. 1003 ¶ 79). During trial, Patent Owner did not dispute this claim construction. *See generally* PO Resp., PO Sur-reply. On appeal, the Federal Circuit did not address the construction of this claim term. *See Microsoft*, 2022 WL 989403. On remand, Patent Owner does not

dispute Petitioner's proposed construction of "data wave carrier." *See generally* PO Remand Opening Br., PO Remand Resp. Br.

Considering the full record, we slightly modify Petitioner's proposed construction and construe "data wave carrier" to mean "an electromagnetic signal used to convey information over a network connection"[13] because it is consistent with the disclosure in the Specification. *See* Ex. 1001, 1:48–52 ("Systems such as the networked computing model 100 are based upon at least one physical transport mechanism 140 coupling the multiple computer Systems 120 and 122 to support the transfer of information between these computers.").

Addressing next the "data wave carrier" recitations of claim 86, Petitioner asserted in the 811 Petition that Kiss teaches "[a] data wave carrier providing a transport mechanism for information communicated," as recited in the preamble of claim 86, because "the agents of Kiss communicate over network connections, such as the Internet" and "such connections would necessarily require an electromagnetic signal to convey information ('data'), regardless of the specific type of network connection used." 811 Pet. 64 (citing Ex. 1005, 14:30–35; Ex. 1048, 1; Ex. 1003 ¶ 784). Petitioner further argued that it would have been obvious to a person of ordinary skill in the art to implement the steps in claim 1 as a "data wave carrier" because "[i]n computer science using a data wave, or carrier signal is a common and near universal method to transmit and receive data" and an ordinarily skilled artisan would have understood "understand how to

[13] Although our construction states "a network connection" instead of "some type of network connection, such as twisted pair, Ethernet or radio wave" in Petitioner's proposed construction, the outcome would be the same under either construction.

transmit the machine steps into a data wave." *Id.* at 64–65 (citing Ex. 1048, 6; Ex. 1048, 4; Ex. 1003 ¶ 785). For the same reasons, Petitioner additionally asserted that Kiss teaches or suggests "the data wave carrier comprising a signal representation of an inter-agent language description of an active client agent's functional capabilities," as recited in claim 86. *Id.* at 66 (citing the discussion of the preamble of claim 86 in the 811 Petition).

On remand, Patent Owner does not dispute Petitioner's contention that the combination of Kiss and FIPA97 teaches or suggests all limitations of claim 86 of the '115 patent. *See* PO Remand Opening Br. 9.

Considering the full record, we determine, for the reasons explained in the 811 Petition, Petitioner has shown sufficiently that Kiss teaches or suggests "[a] data wave carrier providing a transport mechanism for information communication in a distributed computing environment," as recited in the preamble of claim 86,[14] and "the data wave carrier comprising a signal representation of an inter-agent language description of an active client agent's functional capabilities," as recited in the body of claim 86.

Accordingly, based on the full record, we determine that Petitioner has demonstrated by a preponderance of the evidence that claim 86 of the '115 patent is unpatentable under 35 U.S.C. § 103(a) over the combination of Kiss and FIPA97.

2. Dependent Claims 87–89 of the '115 Patent

Claim 87 depends from claim 86 and further recites "the data wave carrier further comprising a corresponding signal representation of said one

[14] Because Petitioner has shown that the recitations in the preamble is satisfied by the combination of Kiss and FIPA97, we need not determine whether the preamble is limiting. *See Vivid Techs.*, 200 F.3d at 803.

or more requests for service in the inter-agent language from a first agent to a second agent." Ex. 1001, 38:8–11. Claim 88 depends from claim 86 and further recites "the data wave carrier further comprising a signal representation of a goal dispatched to an agent for performance from a facilitator agent." *Id.* at 38:12–15.

In the 811 Petition, Petitioner argued that the combination of Kiss and FIPA97 teaches the additionally recited limitations of claims 87 and 88 for the same reasons discussed in connection with the limitation of claim 1 reciting "[distributed electronic agents] receiving a request for service as a base goal in the inter-agent language." 811 Pet. 66–67 (citing 811 Pet. § VI.1.e). For claim 88, Petitioner additionally cited and relied on its analysis of "dispatching each of the sub-goals to a selected client agent for performance" recited in claim 1. *Id.* at 67 (citing 811 Pet. § VI.1.i). As similarly argued for claim 86, Petitioner asserted that Kiss discloses the requests for service and the goals communicated from the meta agent (the claimed "facilitator agent") to knowledge agents are sent over a network connection, which a person of ordinary skill in the art would have understood employ a "data wave carrier" for the same reasons explained above in the context of claim 86. *Id.* (citing Ex. 1005, 12:21–14:35, Figs. 8–21; Ex. 1003 ¶¶ 801, 803).

Claim 89 depends from claim 88 and further recites "a later state of the data wave carrier comprises a signal representation of a response to the dispatched goal including results and/or a status report from the agent for performance to the facilitator agent." Ex. 1001, 38:16–20. In the 811 Petition, Petitioner argued that Kiss teaches the additionally recited limitation of claim 89 because Kiss discloses "messages from knowledge agents back to the meta agent ('a response to the dispatched goal including

results and/or a status report')." 811 Pet. 67–68 (citing Ex. 1005, 12:21–14:30, Figs. 8–20). As similarly argued for claim 86, Petitioner asserted that a person of ordinary skill in the art would have understood that transmission of these messages would employ a "data wave carrier" for the same reasons explained above in the context of claim 86. *Id.* at 68 (citing Ex. 1005, 15:30–35, Fig. 21; Ex. 1003 ¶ 805).

During the trial in the 811 IPR, Patent Owner did not present any arguments specifically directed to claims 87–89 beyond its arguments directed to claim 1. *See generally* PO Resp., PO Sur-reply. On remand, Patent Owner does not dispute Petitioner's contention that the combination of Kiss and FIPA97 teaches or suggests all limitations of claims 87–89 of the '115 patent. *See* PO Remand Opening Br. 9.

Considering the full record, we determine, for the reasons explained in the 811 Petition, Petitioner has shown sufficiently that Kiss teaches or suggests the additionally recited limitations of claims 87–89.

Accordingly, based on the full record, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 87–89 of the '115 patent are unpatentable under 35 U.S.C. § 103(a) over the combination of Kiss and FIPA97.

G. Claims 10 and 11 of the '560 Patent

Claims 10 and 11 of the '560 patent both recite "wherein the ICL syntax supports explicit task completion *advisory suggestions* within goal expressions." 836 IPR, Ex. 1001, 31:10–15 (emphasis added). Claim 10 depends from claim 8, which depends from claim 7, which depends from claim 6, which depends from claim 5, which depends from claim 1. *Id.* at 30:56–31:6, 31:10–12. Claim 11 depends from claim 5, which depends

from claim 1. *Id.* at 30:56–65, 31:13–15. We determined in the 836 IPR that Petitioner had shown by a preponderance of the evidence that claims 1 and 5–8 of the '560 patent are unpatentable under 35 U.S.C. § 103(a) over the combination of Kiss and FIPA97. 836 Final Dec. 136. As noted above, this determination has been affirmed by the Federal Circuit. *See Microsoft*, 2022 WL 989403, at *1. Thus, on remand we need only address whether the combination of Kiss and FIPA97 teaches or suggests the additionally recited limitation of claims 10 and 11.

In the Final Written Decision in the 836 IPR, we noted that neither party proposed a construction of the term "advisory suggestions," recited in claims 10 and 11, but both parties referred to a passage in the '560 patent describing "advice parameters," which "preferably give constraints or guidance to the facilitator in completing and interpreting the goal." 836 Final Dec. 104–105 (citing 836 IPR, Ex. 1001, 16:22–41; 836 PO Resp. 132; 836 Pet. Reply 70; 836 Pet. 62–63). Petitioner argued that the "advisory suggestions" limitation was taught by FIPA97's "Constraints+," including the Director Facilitator Depth, which Petitioner contended was similar to the level_limit advice parameter disclosed in the '560 patent. *Id.* at 105 (citing 836 IPR, Ex. 1006, 21–22). Thus, Petitioner essentially equated the claim term "advisory suggestions" with "advice parameters" as disclosed in the '560 patent, including "constraints." *Id.* In response, Patent Owner argued that FIPA97's "Constraints+" did not teach "advisory suggestions" because the claim term "advisory suggestions" refers to the "guidance" type of advice parameter described in the '560 patent, as distinct from "constraints." *Id.* (citing 836 PO Resp. 131–133). We agreed with Patent Owner that Petitioner had not met its burden to show that FIPA97 taught advisory suggestions rather than constraints. *Id.* at 106–107.

On appeal, the Federal Circuit reversed our implicit claim construction. *Microsoft*, 2022 WL 989403, at *9–10. Specifically, the Federal Circuit determined that "an evident similarity" between "advisory suggestions" and "advice parameters" suggests comparable scope and concluded that "the fairest meaning of 'advisory suggestions' is 'advice parameter,' not a meaning that excludes 'constraints.'" *Id.* at *9. The court remanded for us "to take the necessary next steps, which depend on what, if any, issues remain under the correct claim construction." *Id.* at *10.

Petitioner argues on remand, as it did in the Petition, that FIPA97 discloses a directory performative "search" to search local or remote directories for relevant resources. Pet. Remand Opening Br. 9 (citing 836 IPR, Ex. 1006, 20; 836 IPR, Ex. 1050 ¶¶ 430–431); *see* 836 Pet. 62. The "search" performative may contain "Constraints+," such as Directory Facilitator Depth ("dp-depth") and Required Number of Records ("recsreq"). Pet. Remand Opening Br. 9 (citing 836 IPR, Ex. 1006, 21–22); *see* 836 Pet. 62. Petitioner contends that the Directory Facilitator Depth constraint is similar to the level_limit "advice parameter" disclosed in the '560 patent because both define how many directory facilitators should be searched to locate specific agents. Pet. Remand Opening Br. 9 (citing 836 IPR, Ex. 1006, 21–22); *see* 836 Pet. 62–63. Petitioner argues that constraining a directory search impacts the results of a search and how the base goal is interpreted. Pet. Remand Opening Br. 9; *see* Pet. 63. For example, Petitioner asserts, this parameter can be used to limit the search to only a single directory for efficiency. Remand Opening Br. 9; *see* Pet. 63.

On remand, Patent Owner does not dispute that FIPA97's Directory Facilitator Depth constraint comes within the scope of "advisory suggestions" under the Federal Circuit's construction of that term.

PO Remand Opening Br. 10; *see generally* PO Remand Resp. Br. (not addressing claims 10 and 11 of the '560 patent).

Considering the full record, we determine, for the reasons explained in the 836 Petition and Petitioner's Remand Opening Brief, that FIPA97 teaches an "ICL syntax [that] supports explicit task completion advisory suggestions within goal expressions," as recited in claims 10 and 11.

Accordingly, based on the full record, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 10 and 11 of the '560 patent are unpatentable of the combination of Kiss and FIPA97.

III. CONCLUSION[15]

For the foregoing reasons, for the remaining grounds at issue on remand, we conclude that Petitioner has demonstrated, by a preponderance of the evidence, that claims 8 and 86–89 of the '115 patent and claims 10 and 11 of the '560 patent are unpatentable. For the reasons discussed above, Petitioner has not demonstrated, by a preponderance of the evidence, that claims 9, 10, and 63 of the '115 patent and claim 28 of the '560 patent are unpatentable. The tables below summarize our conclusions on remand.

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

IPR2019-00810 ('115 Patent):

Claims	35 U.S.C. §	References/ Basis	Claim(s) Shown Unpatentable	Claim(s) Not Shown Unpatentable
8–10	103(a)	Kiss, FIPA97	8	9, 10
Overall Outcome			8	9, 10

IPR2019-00811 ('115 Patent):

Claims	35 U.S.C. §	References/ Basis	Claim(s) Shown Unpatentable	Claim(s) Not Shown Unpatentable
86–89	103(a)	Kiss, FIPA97	86–89	
Overall Outcome			86–89	

IPR2019-00814 ('115 Patent):

Claims	35 U.S.C. §	References/ Basis	Claim(s) Shown Unpatentable	Claim(s) Not Shown Unpatentable
63	103(a)	Kiss, FIPA97		63
Overall Outcome				63

IPR2019-00835 ('560 Patent):

Claims	35 U.S.C. §	References/ Basis	Claim(s) Shown Unpatentable	Claim(s) Not Shown Unpatentable
28	103(a)	Kiss, FIPA97		28
28	103(a)	Kiss, FIPA97, Cheyer		28
Overall Outcome				28

IPR2019-00836 ('560 Patent):

Claims	35 U.S.C. §	References/ Basis	Claim(s) Shown Unpatentable	Claim(s) Not Shown Unpatentable
10, 11	103(a)	Kiss, FIPA97	10, 11	
Overall Outcome			10, 11	

V. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that claims 8 and 86–89 of the '115 patent are determined to be unpatentable;

FURTHER ORDERED that claims 9, 10, and 63 of the '115 patent are not determined to be unpatentable;

FURTHER ORDERED that claims 10 and 11 of the '560 patent are determined to be unpatentable;

FURTHER ORDERED that claim 28 of the '560 patent is not determined to be unpatentable; and

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

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