NOTE: This disposition is nonprecedential.

United States Court of Appeals for the Federal Circuit

MICROSOFT CORPORATION,
Appellant

v.

IPA TECHNOLOGIES INC.,
Cross-Appellant

2021-1412, 2021-1413, 2021-1414, 2021-1416, 2021-1417, 2021-1418, 2021-1419, 2021-1420, 2021-1421, 2021-1422, 2021-1423, 2021-1424, 2021-1440, 2021-1442

Appeals from the United States Patent and Trademark Office, Patent Trial and Appeal Board in Nos. IPR2019-00810, IPR2019-00811, IPR2019-00812, IPR2019-00813, IPR2019-00814, IPR2019-00835, IPR2019-00836, IPR2019-00837.

Decided: April 1, 2022

JOSEPH A. MICALLEF, Sidley Austin LLP, Washington, DC, argued for appellant. Also represented by SCOTT BORDER; RICHARD ALAN CEDEROTH, Chicago, IL.

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Before DYK, SCHALL, and TARANTO, *Circuit Judges*.

TARANTO, *Circuit Judge*.

IPA Technologies Inc. owns U.S. Patent Nos. 6,851,115 and 7,069,560, which address computing systems with distributed electronic agents. Microsoft Corporation challenged various claims of the patents in eight inter partes reviews (IPRs) in the Patent and Trademark Office. The Office's Patent Trial and Appeal Board held all challenged claims unpatentable for obviousness, except for claims 8–10, 29–47, 63, and 86–89 of the '115 patent and claims 10–11, 28, 50–51, and 53–55 of the '560 patent.

Microsoft and IPA both appeal. As to Microsoft's appeals: We affirm the Board's determination of no proven unpatentability of claims 29–47 of the '115 patent and claims 50–51 and 53–55 of the '560 patent; but we reverse certain Board findings regarding claims 8–10, 63, and 86–89 of the '115 patent and claims 10–11 and 28 of the '560 patent, and we remand for any further proceedings that may be necessary and appropriate to address those claims. As to IPA's appeals (including cross-appeals): We affirm all of the Board's determinations challenged here by IPA.

I

The '115 patent is titled "Software-Based Architecture for Communication and Cooperation Among Distributed Electronic Agents," and the (child) '560 patent has a similar title—"Highly Scalable Software-Based Architecture for Communication and Cooperation Among Distributed Electronic Agents." The patents share a specification and have an effective filing date of January 5, 1999. Both describe, in the words of the Abstract of the '560 patent, a "software-based architecture . . . for supporting

cooperative task completion by flexible, dynamic configurations of autonomous electronic agents." '560 patent, Abstract; *see* '115 patent, Abstract (similar).

Figure 4 depicts the structure of an exemplary system, which is organized around a "facilitator agent" (equivalently here, a "facilitator")—a specialized server agent that coordinates other specialized agents in the system, in part by keeping an agent registry of all the other agents' capabilities. '560 patent, Fig. 4; *id.*, col. 6, lines 38–58; *id.*, col. 7, lines 30–32, lines 51–53; *see also id.*, Fig. 7. Cooperative task completion can be achieved in the exemplary system as follows. After receiving a request for service from an agent in the system, also called a "goal," the facilitator (1) parses and interprets the goal, (2) creates a goal satisfaction plan by dividing the goal into sub-goals, and (3) delegates the task of performing each sub-goal to an agent having the specialized capability to do so. *See id.*, col. 18, line 54, through col. 19, line 13; *see also id.*, Fig. 11. Communication between agents within this system is preferably accomplished via a common language, which the patents call the Interagent Communication Language (ICL). *Id.*, col. 10, line 54, through col. 11, line 7.

On March 19, 2019, Microsoft filed eight IPR petitions—five involving the '115 patent and three involving the '560 patent. Microsoft argued that the subject matter of all the challenged claims would have been obvious over combinations including at least the following references: (1) Kiss (U.S. Patent No. 6,484,155) and (2) FIPA97 (a document created by the Foundation for Intelligent Physical Agents, J.A. 7519–832).

Kiss, titled "Knowledge Management System for Performing Dynamic Distributed Problem Solving," describes a "knowledge management system that supports inquiries of distributed knowledge resources," in which "[i]nteraction between a user and the knowledge resources is mediated by a collection of cooperative intelligent agents." Kiss,

Abstract. Kiss's agents include meta agents, user agents, and knowledge agents (or intelligent agents), which are organized into layers. *Id.*, Fig. 1; *id.*, col. 5, line 1, through col. 7, line 19. A registry, in the agent service layer, lists the capabilities of each agent that is active in the system. *Id.*, col. 6, line 66, through col. 7, line 19. After a meta agent receives a "formulated question" from a user agent, it "analyzes the formulated question to formulate a solution plan." *Id.*, col. 10, lines 12–15. "By interacting with the agent service layer," including the registry, the meta agent "allocates and assigns tasks to knowledge agents . . . based on the interests and capabilities of those knowledge agents." *Id.*, col. 10, lines 15–18; *id.*, col. 6, line 66, through col. 7, line 2. Undisputedly, however, Kiss does not disclose an interagent communication language. Microsoft Opening Br. 12–13.

FIPA97, created to "provide[] specification of basic agent technologies that can be integrated by agent systems developers to make complex systems with a high degree of interoperability," is split into seven parts. J.A. 7523–25. Part 1 describes a framework for agent management, defined by Agent Platforms and Agent Domains. J.A. 7524; J.A. 7536 (Fig. 2). Each Agent Domain has a Directory Facilitator that maintains an agent registry for agents within the domain. J.A. 7532–33. Part 2 describes an Agent Communication Language (ACL), a common communication protocol that allows agents to communicate with one another. J.A. 7524; J.A. 7575. Part 3 discusses agent-software integration, and Parts 4–7 provide exemplary applications of the system (*e.g.*, for personal travel assistance or for audio/video entertainment and broadcasting). J.A. 7524–25.

The Board instituted all IPRs and ultimately issued eight final written decisions that declared all challenged claims unpatentable for obviousness, except for claims 8–10, 29–47, 63, and 86–89 of the '115 patent and claims 10–11, 28, 50–51, and 53–55 of the '560 patent. All eight final

written decisions are now before us on timely appeals (or cross-appeals) by Microsoft and IPA. We have jurisdiction under 28 U.S.C. § 1295(a)(4)(A) and 35 U.S.C. §§ 141(c), 319. Further details about the challenged patents and claims, prior art, and procedural history are discussed as relevant below.

II

Microsoft presents five arguments on appeal. We review the Board's legal conclusions (including claim constructions based solely on intrinsic evidence) de novo and its factual findings (including those concerning the prior art's teachings and the motivation to combine) for substantial-evidence support. *Hamilton Beach Brands, Inc. v. f'real Foods, LLC*, 908 F.3d 1328, 1339 (Fed. Cir. 2018); *Redline Detection, LLC v. Star Envirotech, Inc.*, 811 F.3d 435, 449 (Fed. Cir. 2015). Substantial evidence exists if "'a reasonable fact finder could have arrived at the agency's decision'" in light of the record as a whole. *Intelligent Bio-Systems, Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1366 (Fed. Cir. 2016) (quoting *In re Gartside*, 203 F.3d 1305, 1312 (Fed. Cir. 2000)). We review the Board's judgments concerning what arguments have been adequately presented in a petition and other pleadings for abuse of discretion. *See Ericsson Inc. v. Intellectual Ventures I LLC*, 901 F.3d 1374, 1379 (Fed. Cir. 2018); *Altaire Pharms., Inc. v. Paragon Bioteck, Inc.*, 889 F.3d 1274, 1284 (Fed. Cir. 2018), *remand order modified by stipulation*, 738 F. App'x 1017 (Fed. Cir. 2018); *Intelligent Bio-Systems*, 821 F.3d at 1367; *see also MModal LLC v. Nuance Commc'ns, Inc.*, 846 F. App'x 900, 906 (Fed. Cir. 2021). "An abuse of discretion is found if the decision: (1) is clearly unreasonable, arbitrary, or fanciful; (2) is based on an erroneous conclusion of law; (3) rests on clearly erroneous fact finding; or (4) involves a record that contains no evidence on which the Board could rationally base its decision." *Intelligent Bio-Systems*, 821 F.3d at 1367 (citation omitted).

A

Microsoft's first argument on appeal is that, for claims 8–10 and 63 of the '115 patent and for claim 28 of the '560 patent, the Board erred in finding that Microsoft had not proven how or why Kiss and FIPA97 would have been combined by a relevant artisan. Microsoft Opening Br. 49–57. Claims 8 and 9 of the '115 patent, which are representative for purposes of this issue, read:

> 8. A computer-implemented method as recited in claim 5 wherein the agent registry data structure includes at least one *trigger declaration* for one active agent.
>
> 9. A computer-implemented method as recited in claim 5 wherein the agent registry data structure includes at least one task declaration, and *process characteristics* for each active agent.

'115 patent, col. 30, lines 10–16 (emphases added). For context, the undisputed interpretation of "trigger" adopted by the Board is "a general mechanism for requesting some action be taken when one or more conditions is met." *Microsoft Corp. v. IPA Techs. Inc.*, No. IPR2019-00810, 2020 WL 6110974, at *50 (P.T.A.B. Oct. 15, 2020) (*IPR810 Decision*). And the specification describes a "trigger declaration" as follows: "Each registered agent may be optionally associated with one or more triggers, which preferably could be referenced through their associated Trigger Declaration fields . . . in the parent facilitator Agent Registry . . . ." '115 patent, col. 17, lines 5–9. "Process characteristics," as construed by the Board, are "characteristics of a process for an agent." *IPR810 Decision*, 2020 WL 6110974, at *11; *see also* '115 patent, col. 17, lines 12–21 ("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 . . . in the parent facilitator Agent Registry . . . .").

In its IPR2019-00810 petition, which included challenges to claims 8–10 of the '115 patent, Microsoft relied on a combination of Kiss and FIPA97 as disclosing the claimed agent registry, *see, e.g.*, J.A. 1428–30, and Kiss as disclosing the agent registry data structure, *see, e.g.*, *IPR810 Decision*, 2020 WL 6110974, at *59. For trigger declarations, Microsoft alleged that FIPA97 Part 6, through its description of the "preconditions2" trigger condition, disclosed an agent registry with trigger declarations. J.A. 1455–56. For process characteristics, Microsoft alleged that FIPA97 Part 1, through its description of an "interaction-protocols" parameter, disclosed an agent registry with process characteristics. J.A. 1457.

Regarding how and why the relevant artisan would combine Kiss and FIPA97 to yield agent registry data structures with trigger declarations or process characteristics, Microsoft, in the general art-description section of its petition, explained:

> In [the Kiss and FIPA97] combination, FIPA97 discloses the inter-agent communication language requirements of the claims not expressly disclosed in Kiss, *as well as other administrative functionality (i.e., Parts 1–3) and exemplary practices (i.e., Parts 4–7).* In particular, FIPA97 provides a common communications protocol and language (FIPA ACL) between the agents of Kiss, *and also adds its administrative functionality and exemplary practices to the Kiss system*, as described with specificity below. These techniques are used to implement the functionality described in Kiss, including facilitating agent collaboration, agent registry, and inter-agent messaging, *as well [as] adding functionality that is disclosed in FIPA97. Where the two systems disclose analogous functionality*, *such as* facilitating cooperation and *agent registry*, their techniques are combined, as a Skilled Artisan would understand that to be an efficient and common sense way

> to implement the combined system in order to obtain the benefits of both, and therefore be motivated to do so.

J.A. 1423 (emphases added and citations omitted). Microsoft also stated that the relevant artisan would include FIPA97's administrative functionality and exemplary practices to obtain the most advantageous implementation of FIPA97's common communication protocol, ACL. J.A. 1426 (also discussing standardization motivation). Microsoft's expert, Dr. Lieberman, made similar statements. *See* J.A. 7227–42 (Lieberman Decl. ¶¶ 217–31).

In response, IPA contended that there was no explanation of why a relevant artisan would be motivated to incorporate FIPA97's agent registry's trigger declarations and process characteristics into Kiss's agent registry data structure. J.A. 1865–67. Microsoft replied by pointing to its petition's discussion of why a relevant artisan would want to add the administrative functionality and exemplary practices of FIPA97. J.A. 2029–34.

In its final decision in IPR2019-00810 for claims 8–10 of the '115 patent, the Board found that Microsoft did not prove "*how* or *why* Kiss's agent registry data structure would have been combined with FIPA97's" analogous agent registry to obtain the subject matter of the claims. *IPR810 Decision*, 2020 WL 6110974, at *61 (claims 9–10); *id.* at *62 (claim 8). The Board recognized that "above, we discussed [Microsoft's] proposed combination of Kiss's electronic agents and their general functions and operations, including agent collaboration, agent registry, and inter-agent messaging, with FIPA97's ACL," *i.e.*, the combination of Kiss's registry with FIPA97's *communication protocol*, but the Board stated that, for the present claims, Microsoft "is proposing a different (or additional) combination—that is, combining the registry of Kiss with the *registry* of FIPA97." *Id.* at *61 (claims 9–10) (emphasis added); *see also id.* at *62 (claim 8). The Board addressed claim 63 of the '115

patent and claim 28 of the '560 patent similarly in IPR2019-00814 and IPR2019-00835. *Microsoft Corp. v. IPA Techs., Inc.*, No. IPR2019-00814, 2020 WL 6532192, *57–59 (P.T.A.B. Nov. 5, 2020) (*IPR814 Decision*); *Microsoft Corp. v. IPA Techs., Inc.*, No. IPR2019-00835, 2020 WL 6106141, *46–47 (P.T.A.B. Oct. 15, 2020) (*IPR835 Decision*).

The Board's determinations at issue are not supported by substantial evidence. Concerning *why* the pertinent aspects of the registries of Kiss and FIPA97 would be combined, Microsoft presented significant evidence of motivation, *see* J.A. 7227–42 (Lieberman Decl. ¶¶ 217–31)—which the Board credited elsewhere in its decisions, *see IPR810 Decision*, 2020 WL 6110974, at *39–40. The Board stated that this evidence did not explain why Kiss's *registry* and FIPA97's *registry* (with its trigger declarations and/or process characteristics) would be combined, as opposed to why Kiss's *registry* and FIPA97's *ACL* would be combined, but that determination is unreasonable on the evidence. The Lieberman declaration did account for why relevant artisans starting with a Kiss-like system would look to FIPA97 and borrow not just its ACL, but also its other administrative functionalities and exemplary practices. *See, e.g.*, J.A. 7240–41 (Lieberman Decl. ¶¶ 229–31).

Concerning *how* Kiss and FIPA97's registries would be combined, Microsoft presented evidence, with little elaboration for what Microsoft said a skilled artisan would know how to do. *See, e.g.*, J.A. 1423–26*;* J.A. 7227–29, 7240 (Lieberman Decl. ¶¶ 217–19, 228). IPA's response, which focused almost entirely on the *why* question, was at most a simple, unelaborated assertion that Microsoft's evidence as to *how* was not enough, with no identification at all of what necessary details were missing. *See, e.g.*, J.A. 1865–67 (objecting to why, not how, the combination would be made); J.A. 4846–48 (making single-sentence assertion about the *how* issue); J.A. 12861 (Medvidovic Decl. ¶ 261) (same). The Board, for its part, did not meaningfully address the

how issue separately from the *why* issue. It did not identify any concrete unanswered questions about how to achieve the combination (which is not a matter of bodily incorporation, but of combining the features required to arrive at the claim). It did not even say whether the combination required more than simply adding one more field to Kiss's registry data structure.

In these circumstances, we see no basis for a reasonable determination rejecting Microsoft's evidence of why and how the combination at issue would be made. Accordingly, we reverse the Board's finding that Microsoft has not persuasively shown how or why Kiss and FIPA97 would have been combined to generate the subject matter of claims 8–10 and 63 of the '115 patent and claim 28 of the '560 patent. We remand for the Board to address any remaining obviousness disputes concerning these claims. *See* J.A. 1865–67 (IPA in its Patent Owner Response making non-disclosure arguments beyond lack of motivation for claims 8–10 of the '115 patent); J.A. 1867 (same for claim 63 of the '115 patent); J.A. 4846–48 (same for claim 28 of the '560 patent); *see also* J.A. 5101–03 (IPA's sur-reply on claim 28 of the '560 patent).

B

Microsoft's second argument on appeal is that, for claims 29–47 of the '115 patent, the Board erred in finding the petition insufficient. Microsoft Opening Br. 57–64. Claim 29, which is representative for this issue, is reproduced below, as is claim 1, which is relevant to our analysis.

> 1. A computer-implemented method for communication and cooperative task completion among a plurality of distributed electronic agents, comprising the acts of: . . .
>
> 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.

'115 patent, col. 29, lines 10–43.

> 29. A computer program stored on a computer readable medium, the computer program executable to facilitate cooperative task completion within a distributed computing environment, the distributed computing environment including a plurality of autonomous electronic agents, the distributed computing environment supporting an Interagent Communication Language, the computer program comprising computer executable instructions for: . . .
>
> constructing a base goal satisfaction plan including the sub-acts of:
>
> determining whether the request service is available,
>
> determining sub-goals required in completing the base goal 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,

> selecting service-providing electronic agents from the agent registry suitable for performing the determined sub-goals, and
>
> ordering a delegation of sub-goal requests complete the requested service . . . .

Id., col. 31, line 48, through col. 32, line 22.

In its IPR2019-00810 petition, for the claim 29 limitations concerning "constructing a [base] goal satisfaction plan," Microsoft stated only: "Kiss/FIPA97 satisfies this claim for the reasons stated in §§ VI.A.1.h." J.A. 1464 (referring to the petition's discussion of the claim 1 limitation "constructing a goal satisfaction plan," J.A. 1445–49). In its institution decision, the Board found that Microsoft had not demonstrated a reasonable likelihood of prevailing, observing that "there exist material differences between these limitations on the face of the claims" but that Microsoft "does not address the claim language of claim 29 or explain why its analysis for claim 1 is sufficient to demonstrate a reasonable likelihood of prevailing with respect to claim 29." J.A. 1693–95. IPA echoed this view in its patent owner's response, J.A. 1845–47, and, in reply, Microsoft argued that there were no material differences between claims 1 and 29, explaining for each alleged difference why the respective claim language had the same meaning and how the alleged disclosure for claim 1 equally applied to claim 29, J.A. 2019–27.

In its final decision in IPR2019-00810, the Board determined that Microsoft had failed to meet its burden in the petition to show with particularity the evidence that supported the grounds for the challenge to claim 29. *IPR810 Decision*, 2020 WL 6110974, at *64–66. Additionally, the Board declined to consider Microsoft's arguments "presented belatedly in the Petitioner Reply." *Id.* at *66. The Board found dependent claims 30–32 and 38–39 unpatentable because they "depend directly or indirectly from claim 29" and Microsoft's "arguments and evidence presented . . .

only address the additionally recited limitations . . . and, therefore, do not remedy the deficiencies in [Microsoft's] analysis of independent claim 29." *Id.* at *66, *70. The Board addressed claim 29's other challenged dependent claims similarly in IPR2019-00811 and IPR2019-00812. *Microsoft Corp. v. IPA Techs. Inc.*, No. IPR2019-00811, 2020 WL 6112246, at *56–58, *62 (P.T.A.B. Oct. 15, 2020) (*IPR811 Decision*); *Microsoft Corp. v. IPA Techs. Inc.*, No. IPR2019-00812, 2020 WL 6106303, at *58–61, *66, *74 (P.T.A.B. Oct. 15, 2020).

We affirm the Board's determination that Microsoft insufficiently pleaded the unpatentability of claims 29–47. Microsoft's petition did not grapple with the claim 29 language, simply stating "Kiss/FIPA97 satisfies this claim for the reasons stated in" the section pertaining to the claim 1 limitation "constructing a goal satisfaction plan." J.A. 1464. That statement is true, however, only if there are no differences between the claims that might affect the Kiss and FIPA97 combination's disclosure. Yet that central, necessary premise is one that Microsoft wholly failed to defend in its petition, even though there are potentially meaningful differences in claim language that warrant discussion.[1] The Board did not abuse its discretion in

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[1] *Compare* '115 patent, col. 29, lines 34–39 (claim 1 requiring "suitable delegation of subgoal requests to best compete the requested service request" by using certain reasoning techniques), *with id.*, col. 32, lines 11–16 (claim 29 requiring "determining whether the request service is available" and "determining sub-goals required in completing the base goal" by using certain reasoning techniques). *Compare also id.*, col. 29, lines 40–43 (claim 1 requiring "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"), *with id.*, col. 32, lines 17–21

concluding that Microsoft's complete failure to address the language differences and explain why they do not matter was a failure to meet the particularity requirements for what must be in the petition and cannot be left to be filled in on reply. *See* 35 U.S.C. § 312(a)(3); 37 C.F.R. §§ 42.22(a)(2) (requiring, among other things, "a detailed explanation of the significance of the evidence"), 42.104(b)(4)–(5) (requiring that petition "specify where each element of the claim is found in the prior art patents or printed publication relied upon" and, regarding submitted evidence, state "the relevance of the evidence to the challenge raised, including identifying specific portions of the evidence that support the challenge"); *Intelligent Bio-Systems*, 821 F.3d at 1369; *Microsoft Corp. v. Biscotti, Inc.*, 878 F.3d 1052, 1074–75 (Fed. Cir. 2017); *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363–64 (Fed. Cir. 2016). Microsoft effectively introduced a new issue when, on reply, it discussed claim differences for the first time. *Cf. Chamberlain Grp., Inc. v. One World Techs., Inc.*, 944 F.3d 919, 925 (Fed. Cir. 2019); *see also AMC Multi-Cinema, Inc. v. Fall Line Patents, LLC*, No. 2021-1051, 2021 WL 4470062, at *6 (Fed. Cir. Sept. 30, 2021) (collecting cases).

Microsoft argues for a contrary conclusion by observing that two claims using different words can cover the same subject matter and that the same prior-art disclosures or combinations can satisfy two differently worded claims. *See, e.g.*, Microsoft Opening Br. 59–60 (citing *Tandon Corp. v. US Int'l Trade Comm'n*, 831 F.2d 1017, 1023 (Fed. Cir. 1987)). But those observations do not cure the problem. Microsoft, in its petition, said nothing at all to defend the crucial premise that the different wording did not matter;

(claim 29 requiring "selecting service-providing electronic agents from the agent registry suitable for performing the determined sub-goals" and "ordering a delegation of sub-goal requests complete the requested service").

and the reply came too late to make up for that complete omission from the petition. Accordingly, we affirm the Board's determinations for claims 29–47 of the '115 patent in IPR2019-00810, IPR2019-00811, and IPR2019-00812.

C

Microsoft's third argument on appeal is that, for claims 86–89 of the '115 patent, the Board erred in determining that the petition was insufficient. Microsoft Opening Br. 64–67. Claim 86, which is representative for this issue, recites:

> 86. A data wave carrier providing a transport mechanism for information communication in a distributed computing environment having *at least one facilitator agent* . . .
>
> wherein *said at least one facilitator agent is operable to construct a goal satisfaction plan* by using reasoning . . . .

'115 patent, col. 37, line 10, through col. 38, line 7 (emphases added).

In its IPR2019-00811 petition, Microsoft said the following about the claim 86 preamble:

> Kiss/FIPA97 discloses "information communication in a distributed computing environment having at least one facilitator agent and at least one active client agent" for the reasons set forth above in §§ VI.[A.]1.a. EX1003, ¶¶ 200–205, 347–351. In particular, Kiss discloses various communications between agents. EX1005, 12:21–14:30, Figs. 8–20. In the combined system, moreover, the details concerning the interests and capabilities of that new agent are communicated to *the agent service layer, which combined with the meta-agent of Kiss constitutes "a facilitator agent" because it facilitates the cooperation in resolving requests by bi-directionally*

> *communicating with knowledge agents and assigning tasks (sub-goals) to them in order the coordinate the cooperative completion of tasks*. EX1005, 12:1–14:30, Figs. 8–20; EX1003, ¶¶ 200–205, 347–351. *FIPA97 also discloses a Directory Facilitator ("facilitator agent")*, which provides analogous functionality, EX1006, 6–7, and for that reason would in the combined system be implemented in the meta agent. EX1003, ¶¶ 347–351.

J.A. 2706–07 (original emphases omitted and emphases added). When later analyzing the claim 86 limitation "wherein said at least one facilitator agent is operable to construct a goal satisfaction plan," Microsoft stated, "This claim element is satisfied for the same reasons described above in § VI.[A.]1.h." J.A. 2708 (referring to the petition's claim 1 discussion of how Kiss's meta agent constructs a goal satisfaction plan, J.A. 2693–97).

The Board determined in its final decision that Microsoft had failed to show with particularity what evidence supported the grounds for the challenge to claim 86, and therefore its dependent claims 87–89. In particular, the Board found that Microsoft could not rely on the single sentence "[t]his claim element is satisfied for the same reasons described above in § VI.[A.]1.h," cross-referencing the petition's discussion of claim 1, to explain the prior art's teaching of the claim 86 limitation "wherein said at least one facilitator agent is operable to construct a goal satisfaction plan," because claim 1 "does not recite 'facilitator agent,' nor does [Microsoft] 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.'" *IPR811 Decision*, 2020 WL 6112246, at *58 (citation omitted).

The Board's determination on this point was an abuse of discretion. The Board's reasoning neglects the petition's discussion of the claim 86 preamble, which explained how

the combination of Kiss and FIPA97 disclosed a facilitator agent, constructed in part from Kiss's meta agent. J.A. 2706–07. As a result, when addressing the more refined limitation "wherein said at least one facilitator agent is operable to construct a goal satisfaction plan," Microsoft did not need to refer to claim 1's discussion to disclose the facilitator agent, having already explained how the combination of Kiss and FIPA97 disclosed this feature. Instead, Microsoft used the cross-reference to explain how Kiss's meta agent (part of the facilitator agent, according to the petition) had the capability of constructing a goal satisfaction plan. J.A. 2708. The Board's failure to consider Microsoft's discussion of the claim 86 preamble, which expressly fills the hole the Board identified in the petition, and the Board's resulting misapprehension of the purpose of the cross-reference, was error. Although IPA relies on *Microsoft Corp. v. FG SRC, LLC*, to argue otherwise, *see* IPA Opening & Response Br. 72–74, that case does not help IPA because it involved something quite different from this case—a Board refusal to "deduce the existence of an obviousness argument from within [a petition's] anticipation argument," 860 F. App'x 708, 713 (Fed. Cir. 2021).

Accordingly, we reverse the Board's finding that Microsoft's petition did not sufficiently demonstrate with particularity the evidentiary support for the grounds for the challenge to claims 86–89 of the '115 patent, and we remand for the Board to reach the obviousness merits. It may be that obviousness of claims 86–89 follows from findings that (1) the combination of Kiss and FIPA97 teaches a facilitator and (2) Kiss's meta agent constructs a goal satisfaction plan, J.A. 1818–47—two facts that either we or the Board have found, *see, e.g.*, *supra* Section II.A; *IPR814 Decision*, 2020 WL 6532192, at *53–54; *IPR835 Decision*, 2020 WL 6106141, at *31–33. But we leave the merits determination to the Board.

D

Microsoft's fourth argument on appeal is that, for claims 10 and 11 of the '560 patent, the Board erred in its implicit claim construction of "advisory suggestions." Microsoft Opening Br. 67–72. Claim 10, which is representative for this issue, recites:

> 10. A computer architecture as recited in claim 8 wherein the ICL syntax supports explicit task completion *advisory suggestions* within goal expressions.

'560 patent, col. 31, lines 10–12 (emphasis added). The specification, while not using the language of "advisory suggestions," does discuss "advice parameters," stating:

> Advice parameters preferably give constraints or guidance to the facilitator in completing and interpreting the goal. For example, a solution_limit parameter preferably allows the requester to say how many solutions it is interested in; the facilitator and/or service providers are free to use this information in optimizing their efforts. Similarly, a time_limit is preferably used to say how long the requester is willing to wait for solutions to its request, and, in a multiple facilitator system, a level_limit may preferably be used to say how remote the facilitators may be that are consulted in the search for solutions. A priority parameter is preferably used to indicate that a request is more urgent than previous requests that have not yet been satisfied. Other preferred advice parameters include but are not limited to parameters used to tell the facilitator whether parallel satisfaction of the parts of a goal is appropriate, how to combine and filter results arriving from multiple solver agents, and whether the requester itself may be considered a candidate solver of the sub-goals of a request.

'560 patent, col. 16, lines 23–41.

In its IPR2019-00836 petition, Microsoft did not propose a claim construction for "advisory suggestions," and it argued that this claim limitation was taught by FIPA97's "Constraints+," including the Director Facilitator Depth constraint, which Microsoft contended was similar to the "level_limit" parameter discussed in the specification. J.A. 5668–69; *see also* J.A. 8839–40 (Lieberman Decl. ¶¶ 430–33). Microsoft thus equated "advisory suggestions" with advice parameters, inclusive of constraints. In response, IPA also did not propose a construction, but argued that FIPA97's "Constraints+" did not disclose "advisory suggestions" because "advisory suggestions" are only those advice parameters which constitute guidance, not those which constitute constraints. J.A. 4844–46.

In its final decision, the Board agreed with IPA, implicitly adopting the construction that "advisory suggestions" are advice parameters that are guidance, exclusive of constraints. The Board stated:

> Although the '560 patent could more clearly differentiate "constraints" from "guidance" or "advisory suggestions," the quoted passage from the '560 patent first describes some parameters that are quantitative in nature (i.e., solution_limit, time_limit, and level_limit) and then describes some that are not (i.e., priority, whether parallel satisfaction is appropriate, how to combine and filter results). In the context of the quoted passage, solution_limit, time_limit, and level_limit, which require numerical values, are more likely than the other parameters to be considered "constraints" rather than "guidance." [Microsoft] asserts that FIPA97 teaches solution_limit, time_limit, and level_limit

> parameters,[2] but [Microsoft] does not attempt to explain why these are disclosed examples of "advisory suggestions" rather than "constraints." Under these circumstances, [Microsoft] has not met its burden to show that the prior art teaches the "advisory suggestions" limitation.

Microsoft Corp. v. IPA Techs., Inc., No. IPR2019-00836, 2020 WL 6260642, *47 (P.T.A.B. Oct. 22, 2020) (*IPR836 Decision*) (citations omitted).

We reverse the Board's implicit claim construction. IPA does not dispute that FIPA97's "Constraints+" are constraints as used in the '560 specification. J.A. 4844–46; IPA Opening & Response Br. 74–76. Rather, the dispute is over whether the claim term "advisory suggestions" means advice parameters (and thus includes constraints) or, instead, means guidance only (and thus excludes constraints). *Compare* Microsoft Opening Br. 67–72, *with* IPA Opening & Response Br. 74–76. In the present IPRs, we look for the correct claim construction under *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc), not for the broadest reasonable interpretation.

Nothing in the Board's decision or the parties' briefs supply any significant basis for claim construction in this matter except for the specification passage quoted above.

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[2] Microsoft calls this clause "confused," since Microsoft never asserted that *FIPA97* teaches the solution_limit, time_limit, and level_limit parameters. Microsoft Opening Br. 69. But the likely Board intent was to say only that Microsoft asserts that FIPA97 teaches *constraints similar to the* solution_limit, time_limit, and level_limit parameters. J.A. 5668–69; *see also* J.A. 8839–40 (Lieberman Decl. ¶¶ 430–33). We need not pursue this matter further, because it does not affect the basis for our reversal.

See, *e.g.*, *IPR836 Decision*, 2020 WL 6260642, at *46–47; IPA Opening & Response Br. 74–76. This is not a case involving a plain meaning of claim language that could channel the consideration of the specification to an inquiry into disclaimer or redefinition. We look to the specification for how it resolves uncertainty left by the claim language when read in isolation. *See*, *e.g.*, *World Class Tech. Corp. v. Ormco Corp.*, 769 F.3d 1120, 1123–24 (Fed. Cir. 2014).

The specification does not use the phrase "advisory suggestions" or even the term "suggestion," and it therefore does not supply an explanation of the meaning of the phrase or term in this context. But the claim phrase "advisory suggestions" has an evident similarity to the specification phrase "advice parameter," and that similarity, in this context, suggests comparable scope. We see no sufficient basis for a different construction—specifically, for the narrowing to a "guidance" subset within the class of what the specification identifies as "advice parameters." All the examples, whether expressly numerical or not, can easily be understood as "constraints," and we see no sound basis for the Board's apparently contrary view. Moreover, the specification does not make clear what, if any, distinction there is between "guidance" and "constraints," and the Board did not define that distinction, on which its (and IPA's) claim construction rests. In these circumstances, we conclude that the fairest meaning of "advisory suggestions" is "advice parameter," not a meaning that excludes "constraints."

Accordingly, we reverse the Board's implicit claim construction, on which the Board rested its determination that Microsoft did not prove unpatentability of claims 10 and 11 of the '560 patent. We remand to the Board to take the necessary next steps, which depend on what, if any, issues remain under the correct claim construction. *See* J.A. 4844–46.

E

Microsoft's fifth and final argument on appeal is that the Board erred in rejecting its challenge to claims 50–51 and 53–55 of the '560 patent. Microsoft Opening Br. 72–79. Claim 50, which is representative for purposes of this argument, recites:

> 50. A computer-implemented method for providing cooperative task completion within a distributed computing environment, the distributed computing environment including a plurality of autonomous electronic agents, the distributed computing environment supporting an Interagent Communication Language, the computer-implemented method comprising the acts of:
>
> *providing a plurality of synchronized agent registries* each declaring capabilities of service-providing electronic agents currently active within the distributed computing environment, *the plurality of synchronized agent registries each resident within a separate computer process* . . . .

'560 patent, col. 34, line 47, through col. 35, line 10 (emphases added).

In its petition in IPR2019-00836, Microsoft offered a construction for the term "computer process," suggesting that it means "a program, a part of a program, or a list of steps to be completed by the computer." J.A. 5640; *see also* J.A. 8743 (Lieberman Decl. ¶ 232); J.A. 8300 (Microsoft Press Computer Dictionary). Applying this construction, Microsoft asserted that FIPA97's Figure 2 taught several components of the "providing . . ." paragraph limitation of claim 50. J.A. 5684–88. FIPA97's Figure 2 is reproduced below.

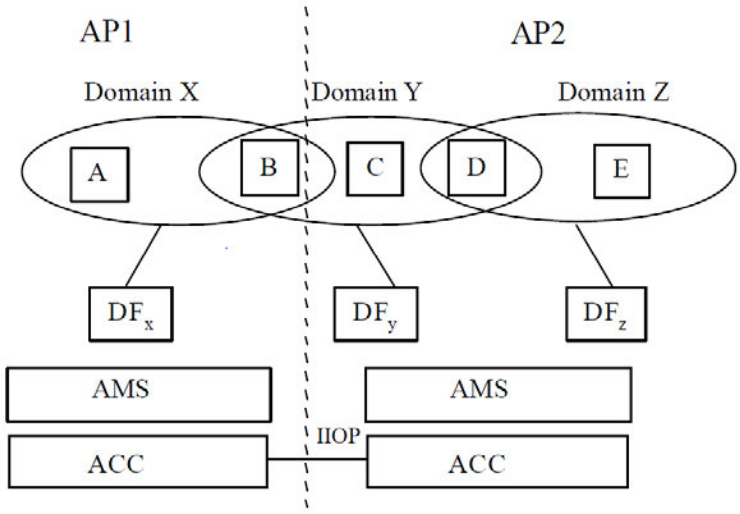

Figure 2 — Agent Platform Reference Model Fragment

J.A. 7536. Microsoft's petition did not assert or explain how, for the identified plurality of agent registries, "each" was "resident within a separate computer process." *See* J.A. 5684–87; *see also* J.A. 8937 (Lieberman Decl. ¶ 697). IPA's patent owner response did not call attention to this omission from the petition but focused on disputing Microsoft's construction of "computer process." J.A. 4756–60.

The Board adopted its own construction of "computer process" to mean "a process that runs or executes one or more computer programs." *IPR836 Decision*, 2020 WL 6260642, at *9–10. Crucially, then, for a reason not dependent on resolution of the claim-construction dispute, the Board ruled that Microsoft had not shown that the relied-on prior art, specifically FIPA97's Figure 2, taught an element of Claim 50. *Id.* at *50–52. Specifically, the Board determined:

> Even under [Microsoft's] proposed construction, . . . the Petition fails to address the language of claim 50, which recites "*the plurality of agent registries* each resident within a separate computer process." Without providing a detailed explanation

> tying its argument to the claim language, [Microsoft] has not met its burden of showing how the prior art teaches the recited limitation.

Id. at *51 (citations omitted).

We affirm that determination, and thus we do not reach the parties' dispute concerning the proper construction of "computer process." We need not address whether Microsoft's petition was adequate because it was readily apparent how FIPA97's Figure 2 meets the claim requirement that each of the plurality of agent registries is resident within a separate computer process. This is so because Microsoft's opening brief in this court provided no coherent explanation of why this part of the Board's decision was incorrect. *See* Microsoft Opening Br. 76–79. Its effort to do so with a new explanation in its reply brief was too late. *See* Microsoft Response & Reply Br. 17–18; *Amhil Enters. Ltd. v. Wawa, Inc.*, 81 F.3d 1554, 1564 (Fed. Cir. 1996) ("A reply brief, which should 'reply to the brief of the appellee,' is not the appropriate place to raise, for the first time, an issue for appellate review." (quoting Fed. R. App. P. 28(c))).

For those reasons, we affirm the Board's unpatentability determinations for claims 50–51 and 53–55 of the '560 patent in IPR2019-00836.

III

We have considered IPA's challenges to various Board determinations. We find them all unpersuasive. In particular, we see no reversible error, based on the standards for corroboration or otherwise, in the Board's determination that the version of FIPA97 in evidence was prior art.

IV

For the foregoing reasons, we affirm as to the Board determinations challenged by IPA. As to the determinations challenged by Microsoft, in the respects detailed in

this opinion, we (1) reverse in IPR2019-00810, IPR2019-00814, and IPR2019-00835 regarding claims 8–10 and 63 of the '115 patent and claim 28 of the '560 patent; (2) affirm in IPR2019-00810, IPR2019-00811, and IPR2019-00812 regarding claims 29–47 of the '115 patent; (3) reverse in IPR2019-00811 regarding claims 86–89 of the '115 patent; (4) reverse in IPR2019-00836 regarding claims 10–11 of the '560 patent; and (5) affirm in IPR2019-00836 regarding claims 50–51 and 53–55 of the '560 patent. We remand for such further proceedings as may be necessary and appropriate regarding the claims on which we have reversed certain Board determinations.

The parties shall bear their own costs.

AFFIRMED IN PART, REVERSED IN PART, AND REMANDED