UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/308,174	06/18/2014	Murat Akbacak	340625-US-NP/199893	6253

45809   7590   12/23/2019

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ART UNIT	PAPER NUMBER
2677	

NOTIFICATION DATE	DELIVERY MODE
12/23/2019	ELECTRONIC

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UNITED STATES PATENT AND TRADEMARK OFFICE
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BEFORE THE PATENT TRIAL AND APPEAL BOARD
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Ex parte MURAT AKBACAK, DILEK Z. HAKKANI-TUR,
GOKHAN TUR, and LARRY P. HECK
_____

Appeal 2018-007780
Application 14/308,174
Technology Center 2600
_____

Before JOHNNY A. KUMAR, LINZY T. McCARTNEY, and MATTHEW
J. McNEILL, *Administrative Patent Judges.*

KUMAR, *Administrative Patent Judge.*

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellant[1] appeals from the

Examiner's decision to reject claims 1–7 and 9–21. Appeal Br. 3. Claim 8

has been cancelled. *Id*. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

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[1] We use the word Appellant to refer to "applicant" as defined in 37 C.F.R.
§ 1.42(a). Appellant identifies the real party in interest as MICROSOFT
TECHNOLOGY LICENSING, LLC. Appeal Br. 3.

STATEMENT OF THE CASE

Introduction

Appellant's invention relates to "systems and methods for improving language models and spoken language understanding (SLU) models for speech recognition by adapting knowledge sources utilized by the models to session contexts." Spec. ¶ 5.

Representative Claim

Representative claim 1 under appeal reads as follows:

> 1. A computer-implemented method comprising:
> receiving usage history information comprising one or more sequences of user-interaction events, each sequence being a series of turns of a session and each event in the sequence corresponding to a respective user tum of the series of turns;
> for each event in the one or more sequences, determining a likely user intent corresponding to the event;
> for each event, determining a set of intent transition probabilities, each intent transition probability representing a probability of a transition occurring from a first user intent to a second user intent and corresponding to a frequency of the transition being detected in the one or more sequences using the likely user intents determined for each event;
> utilizing the set of intent transition probabilities with a language model to provide a session context model for computer-performed speech recognition or contextual understanding;
> determining a user intent of a user based on the set of intent transition probabilities using the session context model; and
> providing user content for the computer-performed speech recognition or contextual understanding based on the determined user intent.

Appeal Br. 14 (Claims Appendix).

REFERENCES AND REJECTIONS[2]

I) Claims 1–7, 9–11, 13–16, and 18–21 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Lloyd (US 8,352,246 B1; iss. Jan. 8, 2013) in view of Arellano et al. (US 2004/0128624 A1; publ. July 1, 2004) and in further view of Nitz et al. (US 2014/0310002 A1; publ. Oct. 16, 2014).[3]

II) Claims 12 and 17 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Lloyd in view of Arellano and in further view of Nitz and in further view of Prous Blancafort et al. (US 2006/0195319 A1; publ. Aug. 31, 2006).

Appellant's Contentions

Appellant contends that the Examiner erred in rejecting claims 1, 7, and 14 under 35 U.S.C. § 103(a) because:

> Claim 1 includes "a set of intent transition probabilities, each intent transition probability representing a probability of a transition occurring from a first user intent to a second user intent." As discussed above, Lloyd is entirely unconcerned with user intent or a

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[2] According to Appellant, "Claim 17 is not indicated as being rejected in either the Final Office Action mailed November 20, 2017, or the preceding Non-Final Office Action. However, the Examiner indicated via phone on February 12, 2018, that he intended to reject claim 17 on the same grounds that are stated in support of the rejection of claim 12. To the extent that claim 17 is deemed to be rejected, Appellant appeals this rejection." Appeal Br. 3. Therefore, we treat claims 12 and 17 together for purposes of this appeal. *See* Ans. 2.

[3] We note that claims 13, 16, and 20 were not listed in the heading statement of the rejection; however, the Examiner provided the rejections for claims 13, 16, and 20 in the description in the Final Action (Final Act. 10–14). We find that the Examiner's failure to list the rejection of claims 13, 16, and 20 was an inadvertent and harmless error.

transition from a first user intent to a second user intent. Instead, at best, Lloyd teaches a probability that an "accessed term" is a correct transcription. *Lloyd,* col. 8, 11. 19-27. The probability that an "accessed term" is a correct transcription, as in Lloyd, bears no relevance to an ***intent transition probability that represents a probability of a transition occurring from a first user intent to a second user intent,*** as is recited by claim 1.

Furthermore, claim 1 states that "each intent transition probability ... correspond[s] to a frequency of the transition from the first user intent to the second user intent." The Office relies on Lloyd to teach this feature. *Final Office Action mailed 11/20/17,* 6. But Lloyd merely mentions "the frequency that [a] term ... occurs in a particular context." *Lloyd,* col. 8, 11. 11-16. Counting a number of term occurrences, as in Lloyd, falls far short of teaching "***a frequency of the transition from the first user intent to the second user intent,***" as is recited by claim 1. The mere fact that Lloyd uses the word "frequency" is insufficient to teach this element of claim 1.

App. Br. 8 (hereinafter "intent transition probability" feature).

ANALYSIS

We have reviewed the Examiner's rejections in light of Appellant's arguments that the Examiner has erred. We disagree with Appellant's conclusions. The Examiner has provided a comprehensive response, supported by sufficient evidence, to each of the contentions raised by Appellant. We adopt as our own (1) the findings and reasons set forth by the Examiner in the Final Action from which this appeal is taken (*see* Final Act. 2–15) and (2) the reasons set forth by the Examiner in the Examiner's Answer in response to Appellant's Appeal Brief (*see* Ans. 3–21). However, we highlight and address specific findings and arguments for emphasis as follows.

As to Appellant's above contentions, we disagree for the reasons set forth by the Examiner at pages 16-19 of the Answer. The Examiner finds Llyod explicitly discloses the disputed "intent transition probability" feature:

> For example, the adjusted language model indicates a probability of an occurrence of a term in a sequence of terms based on other terms in the sequence. Adjusting a language model includes accessing a stored language model and adjusting the stored language model based on the similarity score. Adjusting the accessed language model includes adjusting the accessed language model to increase a probability in the language model that the accessed term will be selected as a candidate transcription for the audio data. Adjusting the accessed language model to increase a probability in the language model includes changing an initial weighting value assigned to the term based on the similarity score. The method includes determining that the accessed term was entered by a user, the audio data encodes speech of the user, the first context includes the environment in which the speech occurred, and the second context includes the environment in which the accessed term was entered. The information that indicates the first context and the information that indicates the second context each indicate a geographic location. The information that indicates a first context and information that indicates the second context each indicate a document type or application type. The information indicating the first context and the information indicating the second context each include an identifier of a recipient of a message.
>
> Llyod, col. 1, ll. 41-64). *See also* Llyod, col. 10, line 40 – col. 11, line 30).

Thus, the Examiner finds Lloyd teaches changing from a first to a second context based on similarity scores and changing weighting values. In other words, Appellant's argument ignores the actual reasoning of the Examiner's rejections. Based on our review of Llyod (Columns 1, 10, and 11), we find that the Examiner, giving the claim its broadest reasonable interpretation consistent with the Specification, has properly found that the

disputed limitations are met by Lloyd. We observe that Appellant's Reply Brief does not rebut the Examiner's findings regarding the intent transition probability limitation.

Appellant has also presented several arguments that the Lloyd reference does not teach or suggest "determining a likely user intent" as recited in the pending claims. Appeal Br. 7−10; Reply Br. 2−5.

Appellant's arguments are misdirected and are not persuasive. Appellant is attacking the Lloyd reference, when the Examiner relies upon Nitz for teaching the claimed "determining a likely user intent" feature. *See* Final Act. 8; Ans. 9.

In particular, the Examiner finds Nitz explicitly teaches "determining a likely user intent":

> Nitz et al[.] teaches a method of <u>determining</u> a likely user intent corresponding to the event **(Nitz para[.] 0022 determines the intent of the user); based on the likely user intents determined for each event (para[.] 0022 determines the intention of a user using VPA 112 and 170 for example the bank transaction sequence**).

Final Act. 8; Ans. 9. *See also* Nitz, ¶ 21:

> An "intent" as used herein generally refers to a structured representation of the VPA **112, 170's** interpretation of the user's natural language dialog input. For example, an intent may include semantically meaningful information about the user's natural language dialog input as well as contextual information contained in or derived from other inputs (e.g., sensor inputs), which the VPA **112, 170** can understand and process in order to invoke another VPA **112, 170** on the user's behalf, or to execute some other action to fulfill the user's intended goal or objective as expressed by the user through the dialog input.

Thus, Appellant is challenging the wrong reference and not responding to the Examiner's specific findings. Appellant's challenge to the references individually is not convincing of error in the Examiner's findings. *See In re Keller*, 642 F.2d 413, 426 (CCPA 1981) ("[O]ne cannot show non-obviousness by attacking references individually where, as here, the rejections are based on combinations of references.)" (Citations omitted).

Therefore, based on this record, we are not persuaded of error regarding the Examiner's underlying factual findings and ultimate legal conclusion of obviousness for independent claim 1, and independent claims 7 and 14 argued together with claim 1.

As to Appellant's contentions regarding claims 5, 6, 11, 12, 17, and 20 (Appeal Br. 10–13), the Examiner has rebutted each of those arguments supported by sufficient evidence. Ans. 10–16, and 19–21. Therefore, we adopt the Examiner's findings and underlying reasoning, which are incorporated herein by reference. We see no error in these unrebutted findings. Separate patentability is not argued for the remaining dependent claims.

Because the Appellant has not persuaded us the Examiner erred, we sustain the rejections of claims 1–7 and 9–21.

CONCLUSION

We affirm the Examiner's decision to reject claims 1–7 and 9–21 under 35 U.S.C. § 103 (a).

DECISION SUMMARY

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1–7, 9–11, 13–16, 18–21	103 (a)	Lloyd, Arellano, Nitz	1–7, 9–11, 13–16, 18–21	
12, 17	103 (a)	Lloyd, Arellano, Nitz, Prous Blancafort	12, 17	
Overall Outcome			1–7, 9–21	

TIME PERIOD FOR RESPONSE

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv) (2017).

AFFIRMED