IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s):	Athanasios Katsamanis et al.	Art Unit :	4114
Serial No. :	16/441,521	Examiner :	Nicole A Kotulak
Filed :	June 14, 2019	Conf. No. :	7627
Title :	DEEP ACTIONABLE BEHAVIORAL PROFILING AND SHAPING		

MAIL STOP APPEAL BRIEF-PATENTS
Commissioner for Patents
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REPLY BRIEF

This document is submitted in response to the Examiner's Answer ("Answer"), mailed 21-Sep-2021, to Appellant's Appeal Brief ("Appeal Brief"), filed 17-Jun-2021 after a Final Action mailed 29-Oct-2020.

In the Answer, the Examiner reiterates the position that Raanani (US 2018/0077286) discloses

"*successive communication events between multiple parties*"

which in claim 2 are required to comprise

"conversational turns in a dialog between the multiple parties"

and which in claim 3 are required to comprise

"separate dialogs between the multiple parties".

and further reiterates the position that the events are processed with one or more neural networks to form

"respective feature vectors forming a sequence of feature vectors"

one or more of which include

"at least one behavioral profile indicator".

1. "successive communication events"

The Office relies again on Raanani at para. [0038] as disclosing the "*successive communication events.*"[1] The Applicant recognizes that Raanani may consider "different time windows of the conversation."[2] But in that passage cited by the Office, those windows are not taught to be "*successive*." Specifically, Raanani discloses two windows: "first two minutes", "third minute", and elsewhere in the disclosure discloses using "various time intervals" without disclosing that they form "*successive events between multiple parties*" as required by claim 1. The Answer makes the conclusion that the "conversation has multiple windows in time, resulting in successive time windows."[3] Furthermore, Raanani's arbitrary time window is being construed to be "*a communication event between multiple parties*." But merely because a time window might contain parts of a conversation between two parties does not make it a "*communication event*" as would have been understood by one skilled in the art having read the Specification.

Even if Raanani's arbitrary time windows could be construed to be the requisite "*events*", regarding the requirement of claim 2 that the events comprise "*conversational turns"* the Answer rebuts the Appeal Brief stating that "a conversation may be ongoing between a customer and a representative, and … the conversation can be broken down into different time windows … where each successive time window includes different parts of the conversation."[4] There is nothing to suggest that any such window comprises a single turn in a conversation, and the mere supposition that, say, the first two minutes of a conversation includes a conversational turn in a dialog does not teach "*the successive communication events comprise conversational turns in a dialog*."

Even if Raanani's time windows could be construed to be the requisite "*events*", regarding the requirement of claim 3 that they comprise *"separate dialogs"* the Answer rebuts the Appeal Brief stating that "historical call data includes conversations plural, i.e., separate dialogs, which can be used for offline analysis."[5] But there is nothing to suggest that use of multiple conversations in offline analysis has anything to do with the required processing of the events/dialogs for presenting a recommendation to a party of those dialogs. Rather, it has to do

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[1] Answer, p. 6, line 24.
[2] Raanani, para. [0038], lines 2-3.
[3] Answer, p. 7, lines 18-19.
[4] Answer, p. 8, lines 1-5.
[5] Answer, p. 8, lines 10-12.

with the offline configuration of Raanani's system, which is subsequently used in an online mode that is relied on in the rejection of claim 1. Furthermore, even in the offline analysis, there is no suggestion that each such conversation is used to form "a respective feature vector" for any further analysis. There is nothing to suggest that Raanani ever contemplates that processing of features of successive dialogs between parties as a sequence could be useful in any way whatsoever. This contrasts with the teaching of the present application which recognizes that "rather than processing each turn and providing a recommendation after each turn, each conversation (e.g., call) is treated as one sample in the sequence, and the goal is to optimize the future interaction."[6]

2. *" feature vectors"* including *"at least one behavioral profile indicator"*

Accepting for the sake of argument that the recited "*communication events*" are disclosed in Raanani's arbitrary time windows, and that the processing of those events by Raanani's "classifier component" corresponds to the recited "*processing [of the] communication events to produce respective feature vectors,*" the Applicant maintains that the processing by the classifier component does not yield the recited "*feature vectors*" in the form of Raanani's "classifiers".

Raanani makes clear that the "classifier component" yields outputs (i.e., the classifiers) such that the

> classifier component 112 analyzes the features 115 [to] generate the classifiers [that] indicate conversation outcomes, e.g., "sales closed", "sales failed," "probability of recommending to a friend," a measure of "customer satisfaction," and Net Promoter Score (NPS). An outcome can have binary values, e.g., "yes/no", "high/low", or non-binary values, e.g., a probability score, enumerated values like "low, average, medium, high, very high," values on a scale of 0-10, etc. For example, an outcome such as customer satisfaction can be measured using binary values such as "low/high", or using non-binary values, such as a scale of 0-10, enumerated values.[7]

But such "conversational outcomes" cannot be construed to correspond to the recited "*features*" at least because they cannot be construed to include a "*behavioral profile indicator*" as required by the claim. The Answer points to Raanani's statement that

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[6] Specification, p. 18, lines 13-15.

[7] Raanani, para. [0037].

> Each of the classifiers indicates a specific outcome, a probability of the specified outcome and can include a set of the features that contributed to the specific outcome.[8]

But including an input to the classifier component (i.e., Raanani's feature) and carrying it through to its output does not disclose the classifier component "*produc[ing] one or more feature vectors … including at least one behavioral profile indicator*." Rather the classifier produces "conversational outcomes" and merely includes features that may have contributed to the outcomes.

Regarding the argument that the output of Raanani's classifier component produces a behavioral profile indicator, the Answer clarifies that it is relying on the feature vectors that are carried through to the output of the classifier component. The Applicant maintains that these features cannot be construed to be "*behavioral profile indicators*" as would be understood by one skilled in the art having read the Specification. The Applicant notes examples in Raanani such as "customer laughter = yes," "greeting customer = yes" and "rapport building = yes"[9] but such features are not "behavioral profile indicators." But such aspects of a conversation could, perhaps, have been understood to be inputs to determining a "*behavioral profile indicator*" but would not have been understood to be part of a "*behavioral profile*." Indeed, Raanani recognizes that such features "contribute to [conversational] outcomes" but they are not themselves indicators of any sort of behavioral profile (e.g., "aggressiveness, engagement, politeness, empathy" as identified in the Specification[10]). Therefore, Raanani does not disclose the processing of communication events to produce features that include behavioral profile indicators.

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[8] *Id.*

[9] Raanani, FIG. 3. (see also, [0037] "laughter by a customer and two open-ended questions from the representative are registered").

[10] Specification, p. 15, line 6.

Respectfully submitted,

Date: 2021-11-22

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