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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte KEITH WOODS-HOLDER

Appeal 2016-008194
Application 13/465,287
Technology Center 2100

Before CARLA M. KRIVAK, JEFFREY S. SMITH, and
KEVIN C. TROCK, *Administrative Patent Judges*.

KRIVAK, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant appeals under 35 U.S.C. § 134(a) from a final rejection of claims 1–6, 8–14, and 16–22. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

STATEMENT OF THE CASE

Appellants' invention is directed to a system "that provides sentiment analysis technology that takes into account the perspective or context of the individual or entity for which the sentiment analysis is being performed." The system uses "multiple points of reference within a hierarchical head noun structure" which "allows the system to return different outcomes depending on a user query specifying one or more head nouns to be taken as reference points for sentiment calculations." This results in determining an "appropriate context for sentiment analysis" which "takes into account the perspective/context associated with the individual or entity for which the analysis is performed". (Abstract).

Independent claim 1, reproduced below, is exemplary of the subject matter on appeal.

1. A method, comprising:
 - at an information processing apparatus that includes a memory, a network interface device, and at least one processor:
 - receiving, via at least the network interface device, one or more expressions for sentiment analysis;
 - assigning, by the at least one processor, an initial sentiment value to the one or more expressions based on a predetermined set of language processing rules and creating an initial sentiment set having the one or more expressions and their associated initial sentiment value;
 - creating, by the at least one processor, a context set of a plurality of head nouns formed as a hierarchical structure;
 - comparing, by the at least one processor, the context set of the plurality of head nouns to the initial sentiment set using multiple points of reference within the hierarchical structure to determine matches between the plurality of head nouns and the one or more expressions in the initial sentiment set;
 - scoring, by the at least one processor, matches in the initial sentiment set based on an application of the context set of the plurality of head nouns to the one or more expressions in the initial sentiment set;

creating, by the at least one processor, a resultant sentiment set containing matched expressions and the score associated with the expressions based on the application of the context set of the plurality of head nouns to the initial sentiment set; and

generating, by the at least one processor, a resultant sentiment value for providing a description of an overall sentiment.

App. Br. 25–26 (Claims Appendix).

REFERENCES and REJECTIONS¹

The Examiner rejected claims 1–4, 6, 8–12, 14, and 16–19 under 35 U.S.C. § 103(a) based upon the teachings of Di Sciullo (US 2012/0246104 A1, published Sept. 27, 2012) and Wright, *Our Sentiments Exactly*, COMMUNICATIONS OF THE ACM, pp. 14–15, vol. 52, no. 4 (April 2009).

The Examiner rejected claims 5, 13, and 20 under 35 U.S.C. § 103(a) based upon the teachings of Di Sciullo, Wright, and Morimatsu (US 2013/0117303 A1, published May 9, 2013).

The Examiner rejected claim 21 under 35 U.S.C. § 103(a) based upon the teachings of Di Sciullo, Wright, and Friedkin, *Attitude Change, Affect Control, and Expectation States in the Formation of Influence Networks*, 20 POWER AND STATUS ADVANCES IN GROUP PROCESSES, pp. 1–29 (2003).

The Examiner rejected claim 22 under 35 U.S.C. § 103(a) based upon the teachings of Di Sciullo, Wright, and Minh (US 2013/0103667 A1, published Apr. 25, 2013).

¹ The Examiner rejected claim 22 under 35 U.S.C. §112 (a) as failing the written description requirement (Final Act. 2). However, this rejection was withdrawn in the Answer (Ans. 2).

ANALYSIS

Appellant contends the Examiner erred in finding Di Sciullo teaches or suggests all the claim limitations of independent claims 1, 8, 9, and 16, except for the limitation “a context set of a plurality of head nouns formed as the hierarchical structure,” and finding Wright teaches or suggests this limitation (Final Act. 3–4). That is, Appellant contends, Di Sciullo does not compare a context set of a plurality of head nouns using multiple points of reference within the head noun hierarchical structure and scoring matches (App. Br. 17–18). Appellant then contends Wright only connects multiple opinions and does not “perform any comparison using a plurality of head nouns or, let alone multiple points of reference in a head noun hierarchical structure” (emphases omitted) (App. Br. 18). Further, Appellant contends Di Sciullo “does not analyze multiple points of reference in a hierarchical head noun structure, let alone score matches based on this analysis” (App. Br. 18). Appellant argues, although Di Sciullo “describes using a ‘knowledge base’ to infer sentiment values,” “Di Sciullo does not at all describe any comparison using a plurality of head nouns, nor does the ‘knowledge base’ reasonably correspond to having multiple points of reference in a hierarchical head noun structure” (App, Br. 19). Appellant then contends Wright “describes sentiment analysis algorithms” that “determine the context of any particular statement by isolating three ‘key’ data points: the topic, the opinion holder, and the opinion itself” (App. Br. 18). However, Wright does not perform a comparison of the plurality of head nouns or multiple points of reference in a head noun hierarchical structure (*id.*). Therefore, Appellant asserts, combining Di Sciullo and Wright does not teach “comparing . . . the context set of the plurality of head

nouns to the initial sentiment set using multiple points of reference within the hierarchical structure to determine matches between the plurality of head nouns and the one or more expressions in the initial sentiment set” or “scoring . . . matches in the initial sentiment set based on an application of the context set of the plurality of head nouns to the one or more expressions in the initial sentiment set” (App. Br. 19; Reply Br. 5). We do not agree.

Initially, we note Appellant’s arguments do not take into account what the *collective teachings* of the prior art would have *suggested* to one of ordinary skill in the art and are therefore ineffective to rebut the Examiner’s prima facie case of obviousness. As the Court stated in *In re Keller*, 642 F.2d 413, 425 (CCPA 1981):

The test for obviousness is not whether the features of a secondary reference may be *bodily incorporated* into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art.

(Emphasis added) (citations omitted).

Appellant recites what the references teach and then recites the claim language, stating the combination of the teachings would not result in Appellant’s invention, without providing persuasive reasoning as to why. The Examiner relied on Di Sciullo for the comparing step, not Wright, and Wright, not Di Sciullo, for the context set of a plurality of head nouns (Final Act.3–4).

We agree with the Examiner that Di Sciullo does compare (matches) (*see* ¶¶184–194; *see* ¶ 184 “a relational table relating entities in knowledge domains, and a set of inference rules applying to the entities in the relational

table and drawing consequences. . . . The rules of the inference engine **24** apply to the elements of the relational table and infer sentiment values”) the context set of a plurality of head nouns (*see* Wright page 15) using multiple points of reference as claimed (Ans. 7–8). Further, although the “knowledge base” in Di Sciullo can “use knowledge of the world” as Appellant contends (App. Br. 19), it need not (*see* ¶ 184 “The inference engine **24** includes a data structure, a knowledge base that uses some knowledge representation structure to capture the *knowledge of a specific domain*, for example a relational table relating entities in knowledge domains, . . .” (emphasis added)). We also agree with the Examiner’s findings that “Di Sciullo discloses a hierarchical structure in the form of relational database” and Wright, in combination with Di Sciullo “discloses a context set of a plurality of head nouns formed as the hierarchical structure” (*id.*).

Therefore, for the above reasons, we sustain the Examiner’s rejection of independent claims 1, 8, 9, and 16, as obvious over the combination of Di Sciullo and Wright.

With respect to dependent claims 2, 10, and 17, we agree with and adopt the Examiner’s findings as our own (Ans. 9–10; Final Act. 5). Particularly, we agree Di Sciullo and Wright teach and suggest a numerical value assigned to each head noun and Di Sciullo teaches and suggests a mathematical combination, as claimed (*see* Di Sciullo ¶¶ 185–191; *see also* ¶¶ 196, 74).

With respect to claims 3, 11, and 18, we agree with and adopt the Examiner’s findings as our own (Ans. 10; Final Act. 5–6; *see* Di Sciullo ¶ 84).

With respect to claim 21, we agree with the Examiner that Di Sciullo and Wright teach “a polarity is assigned to the resultant sentiment value” (Ans. 8). We also find Di Sciullo, without Friedkin, discloses “the polarity being assigned based on a viewpoint of an entity for which the sentiment analysis is being performed,” as claimed (*see* Di Sciullo ¶¶ 72 “the polarity in opinions expressed regarding the asset” and ¶ 73 “polarity positive +, negative -, neutral n”). This recitation in Di Sciullo being equivalent to the recitation in Appellant’s Specification, ¶ 29 (“a particular viewpoint, can be expressed as positive, negative, neutral, factual, or NULL”).

Dependent claims 4, 6, 12, 13, 14, 19, and 22 were not separately argued.

For the above reasons, we sustain the Examiner’s ejection of dependent claims 2–4, 6, 12–14, and 17–22.

DECISION

The Examiner’s decision rejecting claims 1–6, 8–14, and 16–22 is affirmed.

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

AFFIRMED