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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte Z. MARIA WANG and PETER GAIDAREV

Appeal 2019-001857
Application 13/740,570
Technology Center 3600

Before ERIC B. CHEN, MICHAEL J. STRAUSS, and
PHILLIP A. BENNETT, *Administrative Patent Judges*.

BENNETT, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant¹ appeals from the Examiner's decision to reject claims 1–20. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

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 Oracle International Corporation. Appeal Br. 2.

CLAIMED SUBJECT MATTER

The claims are directed to a retail product lagged promotional effect prediction system. Spec., Title. Claim 1, reproduced below, is illustrative of the claimed subject matter:

1. A non-transitory computer-readable medium having instructions stored thereon that, when executed by a processor, cause the processor to predict a lagged promotional effect in response to a promotion of a product in a store, the predicting comprising:

receiving historical sales data for the product in the store;
storing the historical sales data in a panel data format, wherein the panel data format comprises multi-dimensional data;
aggregating the stored sales data, wherein the stored sales data is aggregated to a level having data columns comprising: an identity of a store, a stock keeping unit (SKU) identifier of a product, and an identity of a time period for the sales data;

training, validating and testing one or more candidate regression models using the historical sales data comprising randomly sampling the aggregated data;

selecting one of the one or more candidate regression models based on the validating and testing and generating estimated model parameters using the selected regression model;
and

scoring the selected regression model to determine a sales volume change for the product after the promotion;

wherein the scoring comprises, for a forecasting time period after the promotion has ended, using the selected regression model with the estimated model parameters.

App. Br. 16 (Claims Appendix).

REFERENCES

The prior art relied upon by the Examiner is:

Name	Reference	Date
Milenova	US 2009/0132447 A1	May 21, 2009
Anderson	US 2010/0063870 A1	Mar. 11, 2010
Dodge	US 2010/0287029 A1	Nov. 11, 2010

REJECTIONS

Claims 1–20 stand rejected under 35 U.S.C. § 101 as being directed to patent-ineligible subject matter. Final Act. 2–4.

Claims 1, 4–8, 11–15, and 18–20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Dodge and Milenova. Final Act. 4–8.

Claims 2, 3, 9, 10, 16, and 17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Dodge, Anderson, and Milenova. Final Act. 8–10.

REJECTION UNDER 35 U.S.C. § 101

Standard for Patent Eligibility

In issues involving subject matter eligibility, our inquiry focuses on whether the claims satisfy the two-step test set forth by the Supreme Court in *Alice Corp. v. CLS Bank Int’l*, 573 U.S. 208 (2014). The Court instructs us to “first determine whether the claims at issue are directed to a patent-ineligible concept,” *id.* at 217–18, and, in this case, the inquiry centers on whether the claims are directed to an abstract idea. If the initial threshold is met, we then move to the second step, in which we “consider the elements of each claim both individually and ‘as an ordered combination’ to determine whether the additional elements ‘transform the nature of the claim’ into a patent-eligible application.” *Id.* (quoting *Mayo Collaborative Servs. v.*

Prometheus Labs., Inc., 566 U.S. 66, 79, 78 (2012)). The Court describes the second step as a search for “an “inventive concept”—*i.e.*, an element or combination of elements that is ‘sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself.’” *Id.* (quoting *Mayo*, 566 U.S. at 72–73).

The USPTO has published revised guidance on the application of § 101 consistent with *Alice* and subsequent Federal Circuit decisions. USPTO, *2019 Revised Patent Subject Matter Eligibility Guidance*, 84 Fed. Reg. 50 (Jan. 7, 2019) (“Guidance”). Under the Guidance, we first look to whether the claim recites:

- (1) any judicial exceptions, including certain groupings of abstract ideas (*i.e.*, mathematical concepts, certain methods of organizing human activity such as a fundamental economic practice, or mental processes) (referred to Step 2A, prong 1 in the Guidance); and
- (2) additional elements that integrate the judicial exception into a practical application (*see* MPEP § 2106.05(a)–(c), (e)–(h)) (referred to Step 2A, prong 2 in the Guidance).

Only if a claim (1) recites a judicial exception and (2) does not integrate that exception into a practical application, do we then move to Step 2B of the Guidance. There, we look to whether the claim:

- (3) adds a specific limitation beyond the judicial exception that is not “well-understood, routine, conventional” in the field (*see* MPEP § 2106.05(d)); or
- (4) simply appends well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception.

See Guidance, 84 Fed. Reg. at 52.

Examiner's Findings and Conclusion

The Examiner rejects claim 1 as being directed to a judicial exception without significantly more under *Alice*. Final Act. 2–4. In the first step of the *Alice* inquiry, the Examiner determines:

While claim 1 is directed toward a statutory category of invention, the claim appears to be directed toward a judicial exception, namely the abstract idea of estimating and predicting lagged promotional effect for a retail product. Nevertheless, the limitations that set forth this abstract idea are: “*aggregating the stored sales data, wherein the stored sales data is aggregated to a level having data columns comprising: an identity of a store, a stock keeping unit (SKU) identifier of a product, and an identity of a time period for the sales data; training, validating and testing one or more candidate regression models using the historical sales data comprising randomly sampling the aggregated data; selecting one of the one or more candidate regression models based on the validating and testing and generating estimated model parameters using the selected regression model; and scoring the selected regression model to determine a sales volume change for the product after the promotion.*” Such limitations are considered to set forth the abstract idea, because the claims are directed toward a fundamental economic practice. Additionally, while they may slightly narrow the abstract idea by further describing it, they do not make it less abstract.

Final Act. 2–3. The Examiner further explains:

The Appellant’s claims are directed to the abstract idea of estimating and predicting lagged promotional effect for a retail product by inputting sales data into mathematical regression models; which in light of the current guidelines is a method of utilizing mathematical formulas to implement a fundamental economic practice.

...

The idea to which the instant claims is directed is very similar to the idea of “*selecting certain information, analyzing it*

using mathematical techniques, and reporting or displaying the results of the analysis” identified by the courts in *SAP America Inc. v. Investipic. . . .* Generally, the Appellant claims provide steps for using mathematical formulas to determine the effects of a promotion on a merchant sales; concepts which one having ordinary skill in the art would find to be fundamental. However, specifically, the claims estimate and predict lagged promotional effect for a retail product by inputting sales data into mathematical regression models; which is analogous to *In re Maucorps*, in that the claim-set recites steps for using a mathematical formula (i.e. a regression model) in order to optimize sales during and after a promotional period.

Ans. 3–4.

Under *Alice* step 2, the Examiner determines that the claim does “not include additional elements that are sufficient to amount to significantly more than the judicial exception because:

Furthermore, the claim recites the additional limitations of “*receiving historical sales data for the product in the store; storing the historical sales data in a panel data format; wherein the scoring comprises, for a forecasting time period after the promotion has ended, using the selected regression model with the estimated model parameters.*” Viewing these limitations individually, the limitations “*receiving historical sales data for the product in the store; storing the historical sales data in a panel data format;*” merely represent data gathering steps as inputs to the abstract idea and/or insignificant post-solution activity. Moreover, the generic limitations, referring to “*wherein the scoring comprises, for a forecasting time period after the promotion has ended, using the selected regression model with the estimated model parameters;*” do not constitute significantly more because they are simply an attempt to limit the abstract idea to a particular technological environment. Viewing these limitations as a combination, the claims merely instruct the practitioner to implement the abstract idea with high-level, generic technology executing routine functions.

Final Act. 3–4.

Appellant’s Contentions

Appellant argues that there are several deficiencies in the rejection. Appeal Br. 3–9. Appellant argues the Examiner’s abstract idea analysis is flawed because:

[T]he Examiner has alleged that the abstract idea is “estimating and predicting lagged promotional effect for a retail product.” See 2/4/16 Office Action, p. 2. A comparison of this alleged abstract ideas to the abstract ideas identified by the courts shows that there are no similarities.

Appeal Br. 4. Appellant further argues the claims are not directed to an abstract idea because “the Examiner fails to provide a reasoned rationale that explains why its alleged abstract idea is a foundational or basic practice, such as risk hedging and intermediated settlement.” Appeal Br. 5.

Appellant also challenges the Examiner’s determination under the second step of the *Alice* inquiry. Specifically, Appellant argues “the present claims recite functionality that goes well beyond the mere concepts of simply retrieving, comparing and combining data using a computer.” Appeal Br. 6. Appellant further argues “[t]he Examiner appears to be ignoring the recited non-generic functionality,” and lists several limitations that Examiner allegedly ignored. Appeal Br. 6–7. Appellant further contends the claims the Examiner provides no analysis of whether the invention improves the functioning of a computer. Appeal Br. 8. According to Appellant, the Specification demonstrates the improvement made to the computer because it teaches that “embodiments of the present invention eventually apply only one selected regression model for prediction (i.e., after evaluating one or more candidate models) and is more efficient and scalable

for software implementation.” Appeal Br. 8–9 (quoting Spec. ¶ 46) (emphasis omitted). Appellant also challenges the evidentiary basis of the Examiner’s findings under *Berkheimer v. HP Inc.*, 890 F.3d 1369 (Fed. Cir. 2018). Reply Br. 3–5.

*Revised Guidance, Step 2A, Prong One*²
The Judicial Exception

Applying the Guidance, we are not persuaded the Examiner has erred in rejecting claim 1 as being directed to patent-ineligible subject matter. The Guidance instructs us first to determine whether any judicial exception to patent eligibility is recited in the claim. The Guidance identifies three judicially-expected groupings: (1) mathematical concepts, (2) certain methods of organizing human activity such as fundamental economic practices and commercial interactions, and (3) mental processes. We focus our analysis on the first grouping—mathematical concepts.³

Claim 1 recites the following limitations: (1) “training, validating and testing one or more candidate regression models using the historical sales data comprising randomly sampling the aggregated data;” (2) “selecting one of the one or more candidate regression models based on the validating and testing and generating estimated model parameters using the selected

² Throughout this opinion, we give the claim limitations the broadest reasonable interpretation consistent with the Specification. *See In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997).

³ Appellant’s arguments are made to the claims generally. Therefore, we select claim 1 as representative. 37 C.F.R. § 41.37(c)(iv) (“When multiple claims subject to the same ground of rejection are argued as a group or subgroup by Appellant, the Board may select a single claim from the group or subgroup and may decide the appeal as to the ground of rejection with respect to the group or subgroup on the basis of the selected claim alone.”).

regression model;” (3) “scoring the selected regression model to determine a sales volume change for the product after the promotion;” and (4) “wherein the scoring comprises, for a forecasting time period after the promotion has ended, using the selected regression model with the estimated model parameters.” Appeal Br. 16 (Claims Appendix). These limitations, under their broadest reasonable interpretation, recite a series of abstract mathematical calculations under the Guidance.

The Guidance describes mathematical concepts as including “mathematical relationships, mathematical formulas or equations, mathematical calculations.” Guidance at 52. The Guidance cites as authority, the Federal Circuit’s decision in *SAP America Incorporated v. InvestPic, LLC*, 898 F.3d 1161, 1168 (Fed. Cir. 2018) (“*InvestPic*”). There, the Court held that claims holding that claims to a “series of mathematical calculations based on selected information” are directed to abstract ideas. *Id.* at 1163. Taken together, limitations (1)–(4), like those found abstract in *InvestPic*, recite performing a series of mathematical calculations—predictive modeling through statistical analysis—based on collected, historical sales information. Accordingly, we conclude claim 1 *recites* a judicial exception of mathematical concepts under the Guidance.

Revised Guidance, Step 2A, Prong Two
Integration of the Judicial Exception into a Practical Application

Having determined that the claim 1 recites a judicial exception, our analysis under the Memorandum turns now to determining whether there are “additional elements that integrate the judicial exception into a practical application.” *See* Guidance, 84 Fed. Reg. at 54–55 (citing MPEP § 2106.05(a)–(c), (e)–(h)).

Under the Guidance, limitations that are indicative of “integration into a practical application” include:

1. Improvements to the functioning of a computer, or to any other technology or technical field — *see* MPEP § 2106.05(a);
2. Applying the judicial exception with, or by use of, a particular machine — *see* MPEP § 2106.05(b);
3. Effecting a transformation or reduction of a particular article to a different state or thing — *see* MPEP § 2106.05(c); and
4. Applying or using the judicial exception in some other meaningful way beyond generally linking the use of the judicial exception to a particular technological environment, such that the claim as a whole is more than a drafting effort designed to monopolize the exception — *see* MPEP § 2106.05(e).

In contrast, limitations that are not indicative of “integration into a practical application” include:

1. Adding the words “apply it” (or an equivalent) with the judicial exception, or merely include instructions to implement an abstract idea on a computer, or merely uses a computer as a tool to perform an abstract idea – *see* MPEP § 2106.05(f);
2. Adding insignificant extra-solution activity to the judicial exception — *see* MPEP § 2106.05(g); and
3. Generally linking the use of the judicial exception to a particular technological environment or field of use — *see* MPEP 2106.05(h).

See Guidance, 84 Fed. Reg. at 54–55 (“Prong Two”).

Appellant’s claim 1 recites elements additional to those identified above: (a) “receiving historical sales data for the product in the store;” (b) “storing the historical sales data in a panel data format, wherein the panel data format comprises multi-dimensional data;” and (c) “aggregating the stored sales data, wherein the stored sales data is aggregated to a level having data columns comprising: an identity of a store, a stock keeping unit (SKU) identifier of a product, and an identity of a time period for the sales data.” Appeal Br. 16 (Claims Appendix).

We conclude these limitations (a)–(c) are insufficient to integrate the abstract idea into a practical application because they constitute data gathering operations which are well-established as the types of computer operations fairly characterized as insignificant extra-solution activity. MPEP 2106.05(g) (“Extra-solution activity includes both pre-solution and post-solution activity. An example of pre-solution activity is a step of gathering data for use in a claimed process.”) Viewed as an ordered combination, the analysis stays the same. These additional limitations merely describe the standard data gathering and storage operations which are used to allow a computer use computers as a tool to carry out the abstract mathematical calculations recited in the remainder of the claim. Accordingly, we conclude claim 1 is *directed to* a judicial exception.

The Inventive Concept – Step 2B

Having determined the claim is directed to a judicial exception, we proceed to evaluating whether the claim adds a specific limitation beyond the judicial exception that is not “well-understood, routine, conventional” in the field (*see* MPEP § 2106.05(d)) or simply appends well-understood,

routine, conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception. *See* Guidance at 56.

Our review of the Examiner’s rejection under Step 2B is guided by the revised examination procedure published online by the USPTO on April 19, 2018, entitled “Changes in Examination Procedure Pertaining to Subject Matter Eligibility, Recent Subject Matter Eligibility Decision (*Berkheimer v. HP, Inc.*)” (“*Berkheimer Memorandum*”), which imposed a new fact finding requirement for Examiners, as applicable to rejections under § 101. We agree with the Examiner that the claim does not add specific limitations beyond what is well-understood, routine, and conventional.

As noted above, Appellant argues the invention improves the operation of the computer because the Specification teaches that “embodiments of the present invention eventually apply only one selected regression model for prediction (i.e., after evaluating one or more candidate models) and is more efficient and scalable for software implementation.” Appeal Br. 8–9 (quoting Spec. ¶ 46) (emphasis omitted). We disagree. The claim does not require that multiple candidate models be evaluated for selection of one. Rather, it recites that “one or more candidate models” are trained, validated, and tested. Thus only a single candidate model needs to be evaluated and used, which results in no conservation of resources.

Appellant also challenges the evidentiary basis of the Examiner’s finding in step 2B of the Guidance (*Alice* step 2). Reply Br. 3–4. We are not persuaded of Examiner error. Appellant asserts that evidence is required which demonstrates that all claim limitations are well-understood, routine, and conventional. This is incorrect, as the Step 2B analysis applies to the additional claim elements, and not to those that form the abstract idea itself.

SAP Am. Inc. v. InvestPic, LLC, 898 F.3d 1161, 1168 (Fed. Cir. 2018) (“What is needed is an inventive concept in the non-abstract application realm.”).

To the extent Appellant challenges the Examiner’s findings with respect to these additional elements, we find the Examiner’s determination that the additional limitations in claim 1 are well-understood, routine, and conventional sufficiently supported in this record. The *Berkheimer Memorandum* provides that the Examiner may support a finding that an additional element or combination of elements may be supported by both “an express statement in the specification . . . that demonstrates the well-understood, routine, and conventional nature of the additional element(s).” *Berkheimer Memorandum* at 4, § III(A)(1).

Here, the Specification provides evidence of the well-understood nature of the additional, data collecting limitations recited in claim 1. For example, the Specification indicates that the invention may be carried out by a general purpose computer. Spec. ¶¶ 10–13. The Specification further describes the various data structures and data fields which may be used to collect and store past historical sales data. Spec. ¶¶ 14–16. The description of the collection of storing of historical sales data is provided at a high level, without any detail of the operations carried out by the computer in performing the collection and storage of the data. This high-level description evidences the well-understood, routine, and conventional nature of the data collection and storage processes recited in claim 1.⁴

⁴ See *Berkheimer Memorandum* at 3, § III(A)(1) (“A specification demonstrates the well-understood, routine, conventional nature of additional elements when it describes the additional elements as well-understood or

Accordingly, we do not discern in claim 1 any specific limitation beyond the judicial exception that is not “well-understood, routine, conventional,” and instead agree with the Examiner that the claims do not provide an inventive concept sufficient to transform the judicial exception into patent-eligible subject matter.

Because the Examiner correctly concluded claim 1 is directed to a judicial exception, and because Appellant does not identify any error in the Examiner’s determination under step 2B of the Guidance, we sustain the rejection of representative claim 1 under 35 U.S.C. § 101, as well as of claims 2–20 which fall therewith.

REJECTION UNDER 35 U.S.C. § 103

We have reviewed the Examiner's rejections under § 103 in light of Appellant’s arguments set forth in the Appeal Brief and the Reply Brief. We are not persuaded by Appellant’s arguments. With respect to the rejections under § 103, we adopt as our own: (1) the findings and reasons set forth by the Examiner in the action from which this appeal is taken (Final Act. 4–10) and (2) the findings, reasons, and explanations set forth by the Examiner in the Examiner's Answer in response to Appellant’s Brief (Ans. 7–10) and concur with the conclusions reached by the Examiner. We highlight the following for emphasis.

routine or conventional (or an equivalent term), as a commercially available product, or in a manner that indicates that the additional elements are sufficiently well-known that the specification does not need to describe the particulars of such additional elements to satisfy 35 U.S.C. § 112(a).”)

Claim 1

The Examiner rejects claim 1 as being obvious over Dodge and Milenova. Final Act. 4–6. The Examiner relies primarily on Dodge, finding that it teaches the majority of the limitations of claim 1. Final Act. 5. The Examiner generally relies on Milenova to show that it was known to generate estimated model parameters using a regression model comprising randomly sampled data. Final Act. 5–6.

Appellant presents six arguments against the rejection of claim 1, which we address *seriatim*. Appellant first argues that the rejections under § 103 are flawed “because the prior art fails to disclose aggregating stored sales data to an SKU level, and then selecting and scoring a regression model to predict a lagged promotional effect.” Appeal Br. 10. Appellant asserts that Dodge “is directed to determining an effect of sales **in response to and during a promotion**, as opposed to an effect of sales **after a promotion has ended**.” Appeal Br. 10. We are not persuaded by Appellant’s argument. Dodge teaches predicting sales of promotional products before, during, and after the promotional time period. See, e.g., Dodge Fig. 8; ¶ 75 (“As shown, for example, in FIG. 8, a difference 860-864 between actual sales and baseline sales 750 represents incremental sales driven by promotion.”). As such, Dodge is not limited in the way that Appellant suggests.

Appellant next argues “although Dodge discloses the use of a regression model it fails to disclose selecting one of a plurality of regression models based on validating and testing.” Appeal Br. 10.

We do not find this argument persuasive because it is not commensurate with the scope of the claim. The claim recites “training, validating, and testing *one* or more candidate regression models,” which means that one candidate regression model need only be considered. Appellant does not dispute that Dodge shows use of a regression model.

Appellant’s third argument alleges that Dodge fails to disclose storing data in a “panel data format” as recited in claim 1, nor does it disclose “wherein the panel data format comprises multi-dimensional data.” Appeal Br. 11. According to Appellant, “[t]he terms ‘panel data format’ and ‘multi-dimensional data’ have specific technical meaning and limit the claim, and are completely ignored by the Examiner.” Appeal Br. 11. This argument is not persuasive of Examiner error. In describing “panel data format,” the Specification states:

In one embodiment, the data is processed and stored in a panel data format. In general, “panel data” refers to multi-dimensional data. Panel data contains observations on multiple phenomena observed over multiple time periods for the same stores. In one embodiment, the data columns correspond to merchandise attributes, time, sales and promotion information, and the data rows are the values of the column fields for multiple merchandise items and multiple time periods

Spec. ¶ 15. Thus, according to the Specification, a “panel data format” is merely a format that includes “multi-dimensional data.” Although Appellant asserts that these terms “have specific technical meaning,” Appellant assigns no special meaning to them in the Brief. Based on the description in the Specification, we conclude “multi-dimensional data” encompasses data that can be viewed and sorted in multiple ways, including by time. Under this

interpretation, we agree with the Examiner that Dodge teaches the use of “a panel data format comprising multi-dimensional data.”

As disclosed by Dodge, a point of sale “records the UPC of every sold product(s), the quantity sold, the sale price(s), and the date(s) on which the sale(s) occurred.” Dodge ¶ 61. Dodge further teaches that the point of sale recorded data is “compiled into one or more database.” Moreover, as explained by the Examiner, “Dodge discloses that the collected data “can be prepared and aligned along one or more dimensions including, product, time, geography, etc.” Ans. 9 (citing Dodge ¶¶ 105, 110). Thus, Dodge teaches that sales data may be stored which includes a time component that may be used to view, sort, and analyze the sales data. This disclosure in Dodge teaches the “storing” limitation of claim 1.

Appellant’s fourth argument maintains that the Examiner erred in finding Dodge teaches or suggests “aggregating the stored sales data, wherein the stored sales data is aggregated to a level having data columns comprising: an identity of a store, a stock keeping unit (SKU) identifier of a product, and an identity of a time period for the sales data.” The Examiner finds this limitation taught by Dodge. Final Act. 6 (citing Dodge ¶¶ 44–45). Appellant argues Dodge is deficient because “there is no disclosure in this cited portion of Dodge of aggregating data to a level having the specific recited data columns.” Appeal Br. 12. We disagree.

The cited portions of Dodge teach the use of a “purchase data store” which stores “purchase data.” Dodge ¶ 44. Dodge further teaches that the stored purchase data may be used to generate baseline sales volumes and include “sales in a particular store, during a particular week, of a particular product identified by its unique product identification code (e.g., a UPC,

SKU, or other identifier.” Dodge ¶ 45. We agree with the Examiner that using the purchase to generate a baseline sales volume teaches, or at least suggests, the recited “aggregating the stored sales data.” We further agree that a person of ordinary skill in the art would have understood that the stored purchase data described by Dodge would have included the specified data columns because data columns are typical of relational database structures. For example, the data stored which reflects “sales in a particular store” teaches the recited “identity of a store.” Similarly, Dodge’s “during a particular week,” teaches the recited “identity of a time period,” and Dodge’s “a particular identified by its unique product identification code.” teaches the recited “SKU identifier of the product.”⁵ Appellant argues this disclosure is insufficient because “aggregating” does not appear in the cited passage. However, Appellant does not explain how to why “aggregating” differs from collecting and storing data in a data store as taught by Dodge. Although Dodge does not disclose the recited limitation *in haec verba*, it is well established that “the reference need not satisfy an *ipsissimis verbis* test.” *In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009) (citing *In re Bond*, 910 F.2d 831, 832–33 (Fed. Cir. 1990)). As such, we are not persuaded the Examiner erred in finding Dodge teaches the “aggregating” limitation of claim 1.

Appellant’s fifth argument challenges the Examiner’s finding that Dodge and Milenova teach or suggest the limitation “training, validating,

⁵ Although not necessary to our decision, we note Dodge further teaches storing purchase data “which is indicative of sales for product UPCs and/or other individual product identifier codes, seller location(s) in which the product(s) were sold, sale dates, and/or volumes for each UPC sold in a given week,” which also teaches the argued limitation. Dodge ¶ 60.

and testing one or more candidate regression models based on the validating and testing and generating estimated model parameters using the selected regression model.” Final Act. 12 (citing Dodge ¶¶ 88, 124). Appellant asserts that Dodge is deficient because “there is NO disclosure in this portion of training regression models, and certainly no disclosure of ‘randomly sampling the aggregated data’ used for the training.” Appeal Br. 12. We disagree.

Dodge teaches that “[a] model can be selected and tested by first identifying a level of aggregation, periodicity, and differencing for the data.” Dodge ¶ 14. Dodge also teaches training, validating, and testing candidate regression models at paragraph 88, where it describes that “the data is aligned and harmonized on one or more dimensions.” Dodge ¶ 88. Figure 13 of Dodge also shows testing of the model and validation. Dodge Fig. 13, blocks 1355, 1360. Further, and as explained by the Examiner (Ans.9), Appellant’s argument that Dodge fails to teach “randomly sampling the aggregated data” is not persuasive because the Examiner relies on Milenova (citing ¶¶ 13–18), and not Dodge, as teaching this limitation. Therefore, this argument does not address the rejection actually made by the Examiner.

Lastly, Appellant argues Dodge fails to teach “scoring the selected regression model to determine a sales volume change for the product after the promotion,” as recited in claim 1. We disagree for the reasons stated by the Examiner in the Answer:

Dodge discloses scoring regression models in paragraphs [0040]–[0044]. Generally, Dodge discloses, wherein “[o]ne or more working variables are calculated and fed into a regression model, and additional data related to the sellers by which the

target and competitive products are sold is acquired by the example promotion analysis engine 103;” and “weighting value for purchase/sales data for the identified target product” by “applying a calculation to determine weighting value for purchase/sales data for the identified target product (e.g., during an initial or recalibration execution) and/or by retrieving previously determined weighting value(s) to be applied to the data.” The weight applied to the calculated outcomes of the regression models reads on the instant concept of scoring a regression model.

Ans. 8. Accordingly, we are not persuaded the Examiner erred in rejecting claim 1 under 35 U.S.C. § 103, and we sustain its rejection. For the same reasons, we also sustain the rejections of independent claims 8 and 15 which Appellant argues together with claim 1.

Claims 2 and 3

Claim 2, which depends from claim 1, recites:

The computer-readable medium of claim 1, wherein the selected one of the one or more candidate regression models comprises a constant dipping factor across all products and all types of promotions.

Appeal Br. 17 (Claims Appendix). Claim 3 also depends from claim 1, and recites “wherein the selected one of the one or more candidate regression models comprises a dipping effect that varies with a price difference between a post-promotion time period and a promotion time period.” *Id.*

Both claims are rejected by the Examiner over the combined teachings of Dodge, Milenova, and Anderson. Final Act. 8–10. The Examiner finds that Anderson teaches the use of “a constant dipping factor” and a “dipping effect.” Final Act. 8 (citing Anderson ¶¶ 31, 42). Appellant argues these rejections are in error because Anderson does not teach any “dipping factor,”

and because “the term ‘dipping’ does not appear in any of these paragraphs.”
Appeal Br. 14.

We are not persuaded by this argument. Appellant’s argument that the term “dipping” does not appear in Anderson is not persuasive because there is no requirement that the prior art express the same concepts using identical language. Appellant does not explain why Anderson’s disclosure of a “pantry loading effect” (Anderson ¶ 31) along with “numerous other factors that could also influence those subsequent sales,” (Anderson ¶ 31) is not synonymous with the recited “dipping factor” (claim 2) and “dipping effect” (claim 3). Without any such explanation, Appellant has not shown error in the Examiner’s determination and we sustain the rejections of claims 2 and 3, as well as of claims 9, 10, 16, and 17 which recite similar limitation and for which Appellant offers the same arguments.

Remaining Claims

Appellant presents no separate arguments for patentability of the remaining claims. Therefore, the remaining dependent claims each fall along with their respective independent claims.

CONCLUSION

The Examiner’s rejections are affirmed.

More specifically,

We affirm the Examiner’s decision to reject claims 1–20 under
35 U.S.C. § 101.

We affirm the Examiner’s decision to reject claims 1–20 under
35 U.S.C. § 103.

DECISION SUMMARY

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1–20	101	patent eligibility	1–20	
1, 4–8, 11–15, 18–20	103	Dodge, Milenova	1, 4–8, 11–15, 18–20	
2, 3, 9, 10, 16, 17	103	Dodge, Milenova, Anderson	2, 3, 9, 10, 16, 17	
Overall Outcome			1–20	

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).

AFFIRMED