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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* ARNAR THOR JENSSON

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Appeal 2019-001700  
Application 14/116,700  
Technology Center 3700

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Before BIBHU R. MOHANTY, PHILIP J. HOFFMANN, and  
KENNETH G. SCHOPFER, *Administrative Patent Judges*.

SCHOPFER, *Administrative Patent Judge*.

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellant<sup>1</sup> appeals from the Examiner's decision to reject claims 18–22 and 24–30. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

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<sup>1</sup> We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as COOORI EHF. Appeal Br. 2.

## BACKGROUND

The Specification discloses that “[t]he present invention relates to a language learning system and method adapted to personalize language learning to individual users.” Spec. ¶ 1.

## CLAIMS

Claims 18, 29, and 30 are the independent claims on appeal. Claim 18 is illustrative of the appealed claims and recites:

18. A language learning system adapted to personalize language learning to individual users, comprising:

a data presenter configured to generate and present learning related data to a user associated with a user ID;

a receiver adapted to receive, in response to said learning related data, response data from the user indicating the users response to said learning related data;

a processor that associates said learning related data to said response data so as to couple the response from the user to said learning related data; and

a database including a storage space associated to the user ID for storing said learning related and said associated response data and thus generating an individualized language knowledge database for the user;

wherein the data presenter includes at least an electronic display that displays the learning related data to the user in visual form, a speaker that outputs the learning related data to the user in audio form, or another hardware output device that presents the learning related data to the user, the electronic display, the speaker, or the other hardware output device being connected to the processor,

wherein the receiver includes a keyboard, touch-board mechanism, mouse, speech recognition system, or another hardware user interface that is connected to the processor and receives input from the user as the response data,

wherein the processor is adapted to:

issue a true ( $t_i$ ) or false ( $f_i$ ) learning related data indicator indicating whether the response data matches the learning related data presented to the user, the  $t_i$  or  $f_i$  indicator subsequently being associated to said learning related data and stored at said storage space; and

monitor said  $t_i$  indicators in said storage space and based thereon repetitively presenting learning related data having associated  $t_i$  indicator to the user with user-specific ascending memory spaced interval registered and associated to the learning related data until a pre-defined time interval limit has been reached, and based thereon select at least one task to be presented to the user by said data presenter, the at least one task representing a category of exercises related to a particular language ability learnable through performance of the exercises;

wherein a plurality of task specific exercises included within said at least one task, each of which includes at least one learning related data where said pre-defined interval has been reached, are presented to the user with task time ascending intervals between each task specific exercise in case a user's reply to previous task specific exercises is correct or satisfactory,

wherein said task time ascending intervals between each task specific exercise are spaced individually based on determined task specific forgetting curves, each of the task specific forgetting curves being characteristic for each individual task, and each particular task specific forgetting curve being individualized to the user based at least in part on the user's prior performance of the task specific exercises categorized within the particular task, and

wherein each of the task specific forgetting curves indicate how entries travel deeper into memory as a function of time.

## REJECTION

The Examiner rejects claims 18–22 and 24–30 under 35 U.S.C. § 101 as claiming ineligible subject matter.

### PRINCIPLES OF LAW

#### *Section 101*

An invention is patent-eligible if it claims a “new and useful process, machine, manufacture, or composition of matter.” 35 U.S.C. § 101.

However, the U.S. Supreme Court has long interpreted 35 U.S.C. § 101 to include implicit exceptions: “[l]aws of nature, natural phenomena, and abstract ideas” are not patentable. *E.g.*, *Alice Corp. v. CLS Bank Int’l*, 573 U.S. 208, 216 (2014).

In determining whether a claim falls within an excluded category, we are guided by the Court’s two-part framework, described in *Mayo* and *Alice*. *Id.* at 217–18 (citing *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 75–77 (2012)). In accordance with that framework, we first determine what concept the claim is “directed to.” *See Alice*, 573 U.S. at 219 (“On their face, the claims before us are drawn to the concept of intermediated settlement, *i.e.*, the use of a third party to mitigate settlement risk.”); *see also Bilski v. Kappos*, 561 U.S. 593, 611 (2010) (“Claims 1 and 4 in petitioners’ application explain the basic concept of hedging, or protecting against risk.”).

Concepts determined to be abstract ideas, and thus patent ineligible, include certain methods of organizing human activity, such as fundamental economic practices (*Alice*, 573 U.S. at 219–20; *Bilski*, 561 U.S. at 611); mathematical formulas (*Parker v. Flook*, 437 U.S. 584, 594–95 (1978)); and mental processes (*Gottschalk v. Benson*, 409 U.S. 63, 67 (1972)). Concepts

determined to be patent eligible include physical and chemical processes, such as “molding rubber products” (*Diamond v. Diehr*, 450 U.S. 175, 191 (1981)); “tanning, dyeing, making waterproof cloth, vulcanizing India rubber, smelting ores” (*id.* at 182 n.7 (quoting *Corning v. Burden*, 56 U.S. 252, 267–68 (1853))); and manufacturing flour (*Benson*, 409 U.S. at 69 (citing *Cochrane v. Deener*, 94 U.S. 780, 785 (1876))).

In *Diehr*, the claim at issue recited a mathematical formula, but the Court held that “a claim drawn to subject matter otherwise statutory does not become nonstatutory simply because it uses a mathematical formula.” *Diehr*, 450 U.S. at 187; *see also id.* at 191 (“We view respondents’ claims as nothing more than a process for molding rubber products and not as an attempt to patent a mathematical formula.”). Having said that, the Court also indicated that a claim “seeking patent protection for that formula in the abstract . . . is not accorded the protection of our patent laws, and this principle cannot be circumvented by attempting to limit the use of the formula to a particular technological environment.” *Id.* (citation omitted) (citing *Benson* and *Flook*); *see, e.g., id.* at 187 (“It is now commonplace that an *application* of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection.”).

If the claim is “directed to” an abstract idea, we turn to the second step of the *Alice* and *Mayo* framework, where “we must examine the elements of the claim to determine whether it contains an ‘inventive concept’ sufficient to ‘transform’ the claimed abstract idea into a patent-eligible application.” *Alice*, 573 U.S. at 221 (quotation marks omitted). “A claim that recites an abstract idea must include ‘additional features’ to ensure ‘that the [claim] is more than a drafting effort designed to

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monopolize the [abstract idea].” *Id.* (alterations in original) (quoting *Mayo*, 566 U.S. at 77). “[M]erely requir[ing] generic computer implementation[] fail[s] to transform that abstract idea into a patent-eligible invention.” *Id.*

*USPTO Section 101 Guidance*

In January 2019, the U.S. Patent and Trademark Office (USPTO) published revised guidance on the application of § 101. 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50 (Jan. 7, 2019) (“2019 Revised Guidance”).<sup>2</sup> “All USPTO personnel are, as a matter of internal agency management, expected to follow the guidance.” *Id.* at 51; *see also* October 2019 Update at 1.

Under the 2019 Revised Guidance and the October 2019 Update, 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) (“Step 2A, Prong One”); and

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<sup>2</sup> In response to received public comments, the Office issued further guidance on October 17, 2019, clarifying the 2019 Revised Guidance. USPTO, *October 2019 Update: Subject Matter Eligibility* (the “October 2019 Update”) (available at [https://www.uspto.gov/sites/default/files/documents/peg\\_oct\\_2019\\_update.pdf](https://www.uspto.gov/sites/default/files/documents/peg_oct_2019_update.pdf)).

(2) additional elements that integrate the judicial exception into a practical application (*see* MPEP § 2106.05(a)–(c), (e)–(h) (9th ed. Rev. 08.2017, Jan. 2018)) (“Step 2A, Prong Two”).<sup>3</sup>  
2019 Revised Guidance, 84 Fed. Reg. at 52–55.

Only if a claim (1) recites a judicial exception and (2) does not integrate that exception into a practical application, do we then look, under Step 2B, 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.
- 2019 Revised Guidance, 84 Fed. Reg. at 52–56.

## ANALYSIS

### *Step 2A, Prong One*

Per the 2019 § 101 Guidance, we begin our *Alice*-step-one analysis by determining whether independent claim 1 “recites” an abstract idea under Prong One of Step 2A. (2019 § 101 Guidance, Federal Register Vol. 84, No. 4, at 54.) The Guidance “extracts and synthesizes key concepts identified by the courts as abstract ideas,” and these concepts include

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<sup>3</sup> This evaluation is performed by (a) identifying whether there are any additional elements recited in the claim beyond the judicial exception, and (b) evaluating those additional elements individually and in combination to determine whether the claim as a whole integrates the exception into a practical application. *See* 2019 Revised Guidance - Section III(A)(2), 84 Fed. Reg. 54–55.



“[c]ertain methods of organizing human activity,” and, more particularly, “teaching.” (*Id.* at 52.)

Claim 18 sets forth a “language learning system adapted to personalize language learning to individual users” that includes a “a data presenter configured to generate and present learning related data to a user” and a processor adapted to, *inter alia*, present a user with “at least one task representing a category of exercises related to a particular language ability learnable through performance of the exercises.” Appeal Br. 35–36. The Specification discloses that “the invention preferably seeks to mitigate, alleviate or eliminate one or more . . . disadvantages” of prior systems including prior issues related to slowness and discontinuity in order to maximize effectiveness by creating a fully tailored learning system with which users can learn. *See* Spec. ¶¶ 2, 4. As such, we determine that the claim includes limitations that would normally be employed by teachers when providing a differentiated learning environment for students, i.e. tailoring assignments based on individual students to maximize learning effectiveness. Thus, we agree with the Examiner to the extent that the Examiner finds that certain claim limitations represent usual or common teaching practices, including the practice of presenting data and collecting responses from students in order to determine correctness and provide further teaching approaches. Based on the foregoing, at least for the purposes of this appeal, we determine that claim 1 recites an abstract idea, i.e., a method of organizing human activity in the form of teaching, under Prong One of Step 2A of the Revised Guidance.

*Step 2A, Prong Two*

We next must determine “whether the claim as a whole integrates the recited judicial exception into a practical application of the exception.”

Revised Guidance, 84 Fed. Reg. at 54.

Claim 18 recites a system including “a data presenter,” “a receiver,” “a processor,” and “a database,” each related to a processor for personalizing language learning to individual users by generating and presenting learning related data for a user in order to collect and store user responses related thereto. Appeal Br. 35. With respect to the processor, claim 18 requires that the processor is adapted to perform steps including:

issue a true ( $t_l$ ) or false ( $f_l$ ) learning related data indicator indicating whether the response data matches the learning related data presented to the user, the  $t_l$  or  $f_l$  indicator subsequently being associated to said learning related data and stored at said storage space; and

monitor said  $t_l$  indicators in said storage space and based thereon repetitively presenting learning related data having associated  $t_l$  indicator to the user with user-specific ascending memory spaced interval registered and associated to the learning related data until a pre-defined time interval limit has been reached, and based thereon select at least one task to be presented to the user by said data presenter, the at least one task representing a category of exercises related to a particular language ability learnable through performance of the exercises

Appeal Br. 35–36. Further, the claimed system requires:

wherein a plurality of task specific exercises included within said at least one task, each of which includes at least one learning related data where said pre-defined interval has been reached, are presented to the user with task time ascending intervals between each task specific exercise in case a user's reply to previous task specific exercises is correct or satisfactory,

wherein said task time ascending intervals between each task specific exercise are spaced individually based on

determined task specific forgetting curves, each of the task specific forgetting curves being characteristic for each individual task, and each particular task specific forgetting curve being individualized to the user based at least in part on the user's prior performance of the task specific exercises categorized within the particular task, and

wherein each of the task specific forgetting curves indicate how entries travel deeper into memory as a function of time.

*Id.* at 36.

According to the Examiner, “[t]he processor and database are recited at a high level of generality and are recited as performing generic computer functions routinely used in computer applications.” Final Act. 4. The Examiner further finds that the claimed system does not require anything other than “off-the-shelf, conventional computer components” and that certain functions claimed are “well-established” and have previously been “[c]omputerized.” *Id.* at 4–5. The Examiner also finds that “[i]t is evident that the claimed invention generally relates to data manipulation based on the well-known forgetting curve using (a) regular computer device.” *Id.* at 5.

However, when an additional element in a claim is a “computer,” the relevant question is not whether the claim requires the computer to accomplish a recited function. *See Alice*, 573 U.S. at 223. Rather, “the relevant question” is whether the claim does more than simply “instruct the practitioner to implement the abstract idea” on a computer. *Id.* at 225. The mere recitation of a computer in the claim, and/or words simply saying “apply” the abstract idea “with a computer,” will not transform the abstract idea into a patent-eligible invention.” *Id.* at 223.

Here, we determine that claim 18 does more than simply instruct a practitioner to implement forgetting curves on a generic computer. Rather, claim 18 requires the system, including the claimed processor, to perform specific software steps to implement an adaptive language learning program for individual users. For example, the claim requires that the data presenter presents learning related data to a user, which requires a user response; a processor that issues true and false indicators related to the user's responses and a processor that monitors the true indicators to "repetitively present[] learning related data . . . to the user with user-specific ascending memory spaced interval registered and associated to the learning related data until a pre-defined time interval limit has been reached" and to select "one task representing a category of exercises related to a particular language ability learnable through performance of the exercises." Appeal Br. 35–36. Further, the system uses the "task specific exercises . . . presented to the user with task time ascending intervals between each task specific exercise in case a user's reply to previous task specific exercises is correct or satisfactory" and wherein the intervals are based on forgetting curves specific to each individual task and individualized to the user based on prior performance and the "specific forgetting curves indicate how entries travel deeper into memory as a function of time." *Id.* at 36.

"[S]oftware can make non-abstract improvements to computer technology just as hardware improvements can." *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335 (Fed. Cir. 2016). Here, the Specification indicates that such improvements may relate to language learning for users by better adapting a language learning system to an individual users. *See* Spec. ¶¶ 2, 4, 5. Further, the claim appears to require specific steps by

which software may be used to provide such improvements, as represented by the limitations discussed above. The Examiner does not adequately explain why these specific software limitations fail to integrate the abstract idea into a practical application.<sup>4</sup> Rather, the Examiner finds only that the claimed computer components are recited at a high level of generality and perform generic computer functions such as presenting, receiving, associating, and storing data. Final Act. 4. The Examiner reiterates these findings in the Answer. Ans. 10–11. The Examiner also indicates that the claims only amount to an instruction to implement the abstract idea on a computer and that the specific field in which the Specification is involved does not make the data manipulation any less abstract. *Id.* at 9.

More specifically, the Examiner finds that “[t]he use of a forgetting curve in interval/spaced learning/teaching is evidently well established” and “[c]omputerized usage of such feature is also well-established.” Final Act. 5. Yet, the Examiner does not address adequately the specific software steps required by the claim in order to show that they do not represent a practical application of the abstract idea. Thus, we determine that the Examiner fails to establish, on the record before, that independent claim 18 is “directed to” an abstract idea so as to satisfy *Alice* step one. As such, there is no need to perform Step 2B of the 2019 § 101 Guidance (and/or

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<sup>4</sup> Moreover, although “[s]ome elements may be enough on their own to meaningfully limit an exception,” it is often “the combination of elements that provide the practical application.” (*See* 2019 § 101 Guidance, Federal Register Vol. 84, No. 4, at 55.) As such, “examiners should give careful consideration to both the element and how it is used or arranged in the claim as a whole.” (*Id.*)

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*Alice* step two), and “this concludes the eligibility analysis.” (2019 § 101 Guidance, Federal Register Vol. 84, No. 4, at 54.)

Based on the foregoing, we do not sustain the rejection of claim 18 or dependent claims 19–22 and 24–28. The Examiner relies on substantially the same findings and analysis with respect to independent claims 29 and 30, and for the reasons set forth above, we also do not sustain the rejection of these claims.

### CONCLUSION

We REVERSE the rejection of claims 18–22 and 24–30.

In summary:

<b>Claims Rejected</b>	<b>35 U.S.C. §</b>	<b>Basis</b>	<b>Affirmed</b>	<b>Reversed</b>
18–22, 24–30	101	Ineligible Subject Matter		18–22, 24–30

REVERSED