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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte PRAVEEN K. MURTHY

Appeal 2012-011942
Application 12/415,934
Technology Center 2100

Before ST. JOHN COURTENAY III, THU A. DANG, and
LARRY J. HUME, *Administrative Patent Judges*.

COURTENAY, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

This is an appeal under 35 U.S.C. § 134(a) from the Examiner's final rejection of claims 1–15, 17–32, and 34, which are all the claims pending in the application. Claims 16 and 33 were cancelled. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

Invention

The claimed method is directed to generating a second modeling language representation of the system under test based on a first graphical

modeling language representation of the system under test. (Abstract and claim 1).

Representative Claim

Independent claim 1 is representative of the rejected claims on appeal:

1. A method comprising:

[a] using one or more computer systems, accessing a first graphical modeling language representation of a system under test, the first graphical modeling language representation comprising one or more behavioral diagrams, one or more of the behavioral diagrams comprising one or more first conditional constructs;

[b] *using the computer systems, generating based on the first representation a second modeling language representation of the system under test, the second graphical modeling language representation comprising one or more Message Sequence Charts (MSCs), [b1] one or more of the MSCs comprising one or more second conditional constructs that are mathematically equivalent to one or more of the first conditional constructs; and*

[c] using the computer systems, communicating the second graphical modeling language representation for generating one or more use scenarios based on the second graphical modeling language representation.

(Steps lettered and contested limitations emphasized).

References Cited as Evidence in support of the rejection

1. Lian et al. “Simulation-based analysis of UML statechart diagrams: methods and case studies”, *Software Quality Journal* 16 (published online 17 May 2007), pp. 45–78 (hereinafter “Lian”).
2. “Unified Modeling Language: SuperStructure”, published by Object Management Group (04 July 2005), pp. 1–710 (hereinafter “USM2.0” – adopting the nomenclature used by the Examiner, Ans. 4).
3. Murthy, Praveen K., et al. “High Level Hardware Validation Using Hierarchical Message Sequence Charts”, *Proceedings of the High-Level Design Validation and Test Workshop, 2004*, (10 November 2004), pp. 167–172 (hereinafter “Murthy 2004”).
4. Murthy, Praveen, “High level systems validation using hierarchical message sequence charts”, abstract corresponding to “Colloquium Center for Embedded Computer Systems” by Dr. Praveen Murthy, published by University of California, Irvine, (on or before 26 April 2007), pg. 1 (hereinafter “Murthy 2007”).

Rejection

Claims 1–15, 17–32, and 34 stand rejected under 35 U.S.C. § 103(a) as being obvious over the combined teachings and suggestions of Lian, USM2.0, Murthy (2007), and Murthy (2004).

Grouping of Claims

Based on Appellant’s arguments, we decide the appeal on the basis of representative claim 1. *See* 37 C.F.R. § 41.37(c)(1)(vii)(2004).¹

¹ Appellant filed a Notice of Appeal on January 20, 2012. The date of filing the Notice of Appeal determines which set of rules applies to an *Ex parte* appeal. If a Notice of Appeal is filed prior to January 23, 2012, then the 2004 version of the Board Rules last published in the 2011 edition of Title 37 of the Code of Federal Regulations (37 C.F.R. § 41.1 et seq.) applies to the appeal. *See also Manual of Patent Examining Procedure* (MPEP) 8th ed., Rev. 8, July 2010.

ANALYSIS

We have considered all of Appellant's arguments and any evidence presented. We disagree with Appellant's arguments and we adopt as our own: (1) the findings and reasons set forth by the Examiner in the action from which this appeal is taken, and (2) the reasons and rebuttals set forth in the Answer in response to Appellant's arguments. (Ans. 16–23). However, we highlight and address specific findings and arguments (Appellant's contentions 1–3) for emphasis in our analysis below:

Appellant contests limitations: [b], and particularly [b1], of claim 1: (emphasis added)

[b] using the computer systems, generating based on the first representation a second modeling language representation of the system under test, the second graphical modeling language representation comprising one or more Message Sequence Charts (MSCs), [b1] one or more of the MSCs comprising one or more second conditional constructs that are mathematically equivalent to one or more of the first conditional constructs; and

The differences between Appellant's position and the Examiner's findings are clearly articulated in the Reply Brief:

Even for the sake of the argument and the Appellant does not admit to that USM2.0 discloses conditional constructs, USM2.0 does not disclose or suggest first conditional constructs or second conditional constructs, as independent Claim 1 recites. USM2.0 does not disclose or suggest generating based on the first representation a second modeling language representation of the system under test, the second graphical modeling language representation comprising one or more Message Sequence Charts (MSCs), one or more of the MSCs comprising one or more second conditional constructs that are mathematically equivalent to one or more of the first conditional constructs, as independent Claim 1 recites.

(Reply Br. 4, emphasis omitted).

As noted by the Examiner (Ans. 18–19), the Murthy 2004 and Murthy 2007 references represent the inventor’s own work, with both references being published or made available to the public more than a year before the March 31, 2009 effective filing date of this application on appeal.

Regarding the contested “conditional constructs” of claim 1, we note dependent claim 6 further defines the “conditional constructs” of claim 1 as “each compris[ing] one or more guard constructs or one or more loop constructs.” We observe the cited USM2.0 reference expressly describes guard and loop constructs on pages 456–457. Therefore, we find at least USM2.0 teaches or suggests the contested “conditional constructs” within the broader scope of independent claim 1.

Regarding the contested Message Sequence Charts (MSCs) of claim 1, we note dependent claim 13 further limits the MSCs to be “hierarchically arranged MSCs.” We observe Murthy 2007 expressly describes a presentation on “High level systems validation using hierarchical message sequence charts” by the named inventor of this application on appeal (“Dr. Praveen Murthy”). Therefore, we find at least Murthy 2007 describes the contested MSCs within the broader scope of claim 1, as does the cited Murthy 2004 reference, entitled: “HIGH LEVEL HARDWARE VALIDATION USING HIERARCHICAL MESSAGE SEQUENCE CHARTS.”

Regarding the recited “behavior diagrams” of claim 1, we observe Murthy 2007 expressly describes:

Dr. Murthy will discuss ongoing work at Fujitsu labs where the researchers have been using hierarchical message sequence charts (a more expressive model of computation that subsumes

many UML 2.0 *behavioral diagrams such as sequence, interaction, and state charts*) to specify reactive protocols and generating test suits automatically.

(Abstract, emphasis added).

In considering the close evidence provided by the Examiner, we note “[a] prima facie case of obviousness is established when the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art.” *In re Bell*, 991 F.2d 781, 783 (Fed. Cir. 1993) (quoting *In re Rinehart*, 531 F.2d 1048, 1051 (CCPA 1976)). The Supreme Court further guides: “[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (2007). “If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability.” *Id.* at 417.

This reasoning is applicable here. We find Appellant’s contentions regarding limitations [b] and [b1] are grounded on an erroneous premise which presumes *a plurality of prior art elements* is unobvious over a *single prior art element* of essentially the same type. Specifically, regarding claim 1 limitation [b1], Appellant contends a *second* conditional construct that is recited as being mathematically equivalent to a first claimed conditional construct is not taught by the cited combination of references, and thus presume the claimed *second* conditional construct is unobvious over the cited prior art. (See App. Br. 13; Reply Br. 3; see also claim 1 limitation [b1]).

We conclude claiming a mere *plurality* of prior art elements (i.e., a second modeling language representation based on the first representation including associated conditional constructs) is not an unobvious distinction

over the prior art of record, absent some showing of secondary considerations, such as unexpected results.

Without evidence of secondary considerations in the record, we find the duplication of known prior art features cited by the Examiner (Ans. 4–23) would generate a predictable result. Therefore, we conclude Appellant’s contested claim features would have been obvious over the prior art of record. *See KSR*, 550 U.S. at 416–17. *Cf.* “A mere duplication of parts is not invention.” *In re Marcum*, 47 F.2d 377, 378 (CCPA 1931) (citing *Topliff v. Topliff*, 145 U.S. 156, 163 (1892)). “It is well settled that the mere duplication of parts has no patentable significance unless a new and unexpected result is produced.” *In re Harza*, 274 F.2d 669, 671 (CCPA 1960).

Thus, even if, *arguendo*, the Examiner’s proffered combination of references does not expressly teach contested limitation [b1]: “***one or more of the MSCs comprising one or more second conditional constructs that are mathematically equivalent to one or more of the first conditional constructs,*” as urged by Appellant (App. Br. 13; Reply Br. 3), on this record, we are not persuaded of error regarding the Examiner’s ultimate legal conclusion of obviousness regarding contested limitations [b] and [b1]. (Emphasis and underline added). Accordingly, we sustain the § 103 rejection of representative independent claim 1, and of the grouped claims which fall therewith. *See Claim Grouping, supra.*²**

² In the event of further prosecution of this application, we leave it to the Examiner to review all the claims for compliance under 35 U.S.C. § 101

DECISION

We affirm the Examiner's decision rejecting claims 1–15, 17–32, and 34 under § 103. 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. § 41.50(f).

AFFIRMED

cdc

in light of the recently issued preliminary examination instructions on patent-eligible subject matter. *See* “Preliminary Examination Instructions in view of the Supreme Court Decision in *Alice Corporation Pty. Ltd. v. CLS Bank International, et al.*,” Memorandum to the Examining Corps, June 25, 2014.

Further, it appears the “computer-readable tangible storage media” of independent claim 18, and the claims depending therefrom, may not be directed to statutory subject matter under § 101 for an additional reason. Under our jurisprudence, the scope of the recited “computer-readable tangible storage media” appears to encompass transitory media such as signals or carrier waves. *See Ex parte Mewherter*, 107 USPQ2d 1857 (PTAB 2013) (precedential) (holding recited machine-readable *storage medium* ineligible under § 101 since it encompasses transitory media).

Here, the recited “computer-readable tangible storage media” (claims 18–32 and 34) is not claimed as non-transitory, and the originally-filed Specification (e.g., *see* ¶ 44) does not expressly and unambiguously disclaim transitory forms, such as signals, via a definition or disclaimer. Therefore, the “computer-readable tangible storage media” of independent claim 18, and the claims depending therefrom, is not limited to non-transitory forms and appears to be ineligible under § 101.

Although the Board is authorized to reject claims under 37 C.F.R. § 41.50(b), no inference should be drawn when the Board elects not to do so. *See* Manual of Patent Examining Procedure (MPEP) 1213.02.