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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* KLAUS SCHAUSER, FREDRIK VALEUR, JERRY ZHENG,  
TUSHAR RANKA, and DONALD TOGNAZZINI

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Appeal 2014-009116  
Application 12/637,121  
Technology Center 2100

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*Before* ST. JOHN COURTENAY III, CARLA M. KRIVAK, and  
JOYCE CRAIG, *Administrative Patent Judges*.

COURTENAY, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134(a) from the Examiner's Final Rejection of claims 1–30, which are all the claims pending in this application.<sup>1</sup> We have jurisdiction under 35 U.S.C. § 6(b). An oral hearing was conducted on November 10, 2016.

We Reverse.

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<sup>1</sup> We refer to the Final Office Action, mailed August 14, 2013.

## STATEMENT OF THE CASE

### *Invention*

The disclosed and claimed invention on appeal “relates to systems and methods for importing data from data sources, including data sources, over a network while correcting and transforming the data.” (Spec. 1.)

Claim 1, reproduced below, is illustrative of the claimed subject matter:

1. A method of repairing and migrating data from a data source over a network, the method comprising:

receiving, by a server, a first data of a plurality of data stored in a first data source;

identifying, by the server, a relationship between the first data and one or more additional data received from one or more additional data sources;

grouping, by the server, based on the relationship, the first data and the one or more additional data;

adding, by the server, to the first data, an indicator of the grouping;

performing, by the server, a first transformation upon the first data to repair the first data based on at least one of the additional data in the grouping;

storing, in a memory element provided by the server, the repaired first data;

performing, by the server, a second transformation upon the repaired first data to format the repaired first data; and

transmitting, by the server, the repaired and formatted first data to a new data server.

### *Rejection*

Claims 1–30 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Majjasie (US 2007/0011205 A1; published Jan. 11, 2007),

in view of Smith (US Patent 7,856,583 B1; issued Dec. 21, 2010), and further in view of Hsu (US Patent 7,085,953 B1; issued Aug. 1, 2006).

### ANALYSIS

Based upon our review of the administrative record, we find the following issue is dispositive in this appeal:

**Issue:** Under § 103, did the Examiner err by improperly combining the cited references?

Regarding the Examiner's proffered combination of Majjasie, Smith, and Hsu, Appellants argue, *inter alia*: (1) the cited references are non-analogous art, and (2), the Examiner erred by relying on impermissible hindsight. (App. Br. 18–22). Based upon a preponderance of the evidence, we find Appellants' second argument persuasive, for at least the reasons discussed *infra*.

At the outset, we note the primary Majjasie reference is directed to managing *high-level user data*, which is related to a *product* being designed or manufactured, as applicable to engineering and manufacturing information systems. *See* Majjasie (Abstract):

A data management system is provided that is designed to automatically propagate changes in *information related to a product being designed or manufactured*. The product information may be stored in a central location such as a central data base. According to the invention, product information may be transferred to remote locations to systems having disparate formats and protocols. The *product information* may be configured into a standard format within the central data base and transferred to remote and disparate user locations for use in user's engineering and manufacturing information systems.

In contrast, we observe the secondary Smith reference is directed to techniques for enhanced reliability of data transfer (Title), which transmits *binary data* over a network in groups of “chunks” and uses a “recovery chunk” to recover data lost for a single chunk, as summarized in the abstract:

A recovery chunk is generated based on information found in each chunk in a group of chunks. For example, the group of chunks includes three chunks of which information in the three chunks is used to generate a recovery chunk. The recovery chunk is then used to recover a single lost chunk in the group of chunks. The three chunks and the recovery chunk are sent to a receiver over a network. If one of the three chunks is lost, the recovery chunk is used to generate the lost chunk. The recovery chunk is used to recover a single lost chunk, however, the recovery chunk is not used to recover more than one lost chunk in the group. The number of chunks is also dynamically adjusted based on chunk loss at a receiver. This adjustment is based on the bandwidth used and reliability desired.

We observe the tertiary Hsu reference is also directed to *low-level binary data recovery*, such as applicable to RAID disk arrays, as summarized in the Abstract:

Stored data can be recovered from a disk array having at least  $2n+1$  physical disks that are capable of storing  $n$  physical disks worth of data when any two disks fail, or when more than two dependent disks fail. Data is stored in data stripes that are divided into  $n$  substantially equal-sized strips and are distributed across the  $n$  disks. Each data stripe has a corresponding parity strip that is generated by including the data strips in the data stripe only once when the parity strip is generated. The data strips of each data stripe, the copy of each such data strip and the corresponding parity strip are distributed across the disks in such a manner that the data strips of each data stripe, the copy of each such data strip and the corresponding parity strip are each on a respectively different disk of the disk array.

The Examiner provides the following rationale to modify Majjasie with the teachings of Smith (Final Act. 4)<sup>2</sup>:

At the time of invention it would have been obvious to a person of ordinary skill in the art to modify the data formatting system disclosed by Majjasie ('205) such that, prior to the management server receiving and formatting information from the database (as in the abstract of Majjasie ('205)), the information has been grouped, an indication of the grouping was stored, and the grouping is used to repair data, as taught by Smith ('583). *This modification would have been obvious because use of data chunk grouping allows for data recovery (Smith ('583), see abstract) and dynamic adjustment of the amount of redundancy (Smith ('583), end of abstract) such that data transmissions may be more economical when loss is low (Smith ('583) column 1 line 60 through column 2 line 13).*

(Emphases added.)

The Examiner provides the following rationale to modify the combination of Majjasie and Smith with the teachings of Hsu (Final Act. 5):

At the time of invention it would have been obvious to a person of ordinary skill in the art to modify the server transmission system disclosed by Majjasie ('205) in view of Smith ('583), such

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<sup>2</sup> The Examiner's articulated reasoning in the rejection must possess a rational underpinning to support the legal conclusion of obviousness. *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006). The Supreme Court guides: "rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (quoting *Kahn*, 441 F.3d at 988).

that the server source utilizes a redundant array as storage, as taught by Hsu ('953). Use of such an array provides for data to be received from multiple sources. This modification would have been obvious *because it allows the server storage system to tolerate multiple disk failures without losing stored data* (Hsu ('953) column 1 lines 9-12).

(Emphases added.)

Appellants urge the Examiner's combination is improper because, *inter alia*:

*the primary reference, Majjasie, is unconcerned with disk failures - yet the Action gives "tolerate multiple disk failures" as the purported goal of including Hsu in the combination. It is therefore clear that Hsu is not cited to modify the primary reference; instead Hsu is cited to remedy a defect in Smith, not related to Majjasie. This clear use of a tertiary reference to modify a secondary reference has long been considered clear evidence of improper hindsight bias.<sup>3</sup> Thus, the Examiner not only fails to present a rational basis for combining the non-analogous art references Smith and Hsu, which do not teach or suggest the subject matter for which they are asserted, but also clearly engages in improper hindsight reasoning. Therefore, the proposed combination of references may not be used in an obviousness rejection.*

(Emphases added) (App. Br. 21–22).

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<sup>3</sup> As cited as a footnote in support in the Appeal Brief (22) (“In the past . . . **the further modification of a modifying reference** was looked upon as a **sure sign of hindsight**. While per se rules of obviousness have gone from the scene, **we think this rule is still indicative of a rejection that lacks a rational underpinning.**” (*Ex parte Josip Stefanie and Checrallah Kachouh*, Appeal 2009-007463, at 4 (Board of Patent Appeals and Interferences, non-precedential decision by Administrative Patent Judge William F. Pate III, Notification Date September 2, 2010)).”).

The Examiner disagrees with Appellants' arguments regarding the proffered combination: "[T]he claims may be legitimately interpreted as being directed to binary data repair. Using that interpretation, the motivation to combine with Hsu is proper and reasonable. [The] [p]rimary reference Majjasie is directed to handling data files and Hsu provides data storage schemes for protecting similar data." (Ans. 13.)

We agree with the Examiner (*id.*) that the claims do not preclude a broad but reasonable reading on binary data, such as described by Smith and Hsu. However, as urged by Appellants (App. Br. 21, n.6), "The mere fact that references can be combined or modified does not render the resultant combination obvious [unless the results would have been predictable to one of ordinary skill in the art]." (Quoting MPEP § 2143.01 (III) (citing *KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 417 (2007)).

Regarding Appellants' hindsight argument (App. Br. 21–22), we are cognizant that our reviewing courts have not established a bright-line test for hindsight. In *KSR*, the Supreme Court guides that "[a] factfinder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of argument reliant upon *ex post* reasoning." *KSR*, 550 U.S. at 421 (citing *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 36 (1966)). Nevertheless, the Supreme Court also qualified the issue of hindsight by stating: "[r]igid preventative rules that deny factfinders recourse to common sense, however, are neither necessary under our case law nor consistent with it." *Id.*

*Hindsight Balancing Test*

Here, we see the post-*KSR* hindsight question before us as a *balancing test*: We consider the question of whether the Examiner’s proffered combination of references is merely:

(1) “the predictable use of prior art elements according to their established functions” (*KSR*, 550 U.S. at 417), consistent with *common sense*; or,

(2) would an artisan have *reasonably* combined the cited references in the manner proffered by the Examiner *but for* having the benefit of Appellants’ claims and/or Specification to use as a guide? <sup>4 5</sup>

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<sup>4</sup> See *In re Cree, Inc.*, 818 F.3d 694, 702, n.3 (Fed. Cir. 2016) (where the Board applied the hindsight balancing test)(“Cree argues that the Board's rejection was based on ‘impermissible hindsight.’ That argument, however, is essentially a repackaging of the argument that there was insufficient evidence of a motivation to combine the references. It is fully answered by the Board’s observation that ‘the weight of the evidence shows that the proffered combination is merely a predictable use of prior art elements according to their established functions.’”); see also *Ex Parte Cree, Inc. Patent Owner & Appellant*, APPEAL 2014-007890, 2014 WL 6664878, at \*17 (PTAB, Nov. 21, 2014). We note the hindsight balancing test has been applied by various panels in approximately thirty PTAB opinions, mailed over a number of years, as of the mailing date of this opinion.

<sup>5</sup> Hindsight is impermissible when an Examiner rejects an application in reliance upon teachings not drawn from any prior art disclosure, but from the Appellants’ own disclosure. See *In re Deminski*, 796 F.2d 436, 443 (Fed. Cir. 1986); *W.L. Gore & Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1553 (Fed. Cir. 1983) cert, denied, 469 U.S. 851 (1984); *Grain Processing Corp. v. American Maize-Products Co.*, 840 F.2d 902, 907 (Fed. Cir. 1988). “Obviousness cannot be established by hindsight combination to produce the claimed invention.” *In re Dance*, 160 F.3d 1339, 1343 (Fed. Cir. 1998).

After reviewing the respective teachings and suggestions of the cited references, we find the evidence more strongly answers the *second prong* of the balancing test in the negative, leading us to conclude, based upon a preponderance of the evidence, the Examiner has relied upon impermissible hindsight reconstruction in formulating the rejection.<sup>6</sup> Even if *arguendo* (without deciding) the Examiner’s proffered combination of Majjasie, Smith, and Hsu would have taught or suggested the limitations contested by Appellants as falling within a broad but reasonable interpretation of the claims, we nevertheless find the Examiner’s proffered rationales for the combination are unconvincing. (*See* Final Act. 4–5.)

As discussed above, the Majjasie reference is concerned with high-level application data, such as engineering and manufacturing change orders (“ECOs” and “MCOs” ¶¶ 4, 31). In contrast, the cited Smith and Hsu references are directed to the transmission and/or recovery of lost or corrupted low-level binary data. As argued by Appellants (App. Br. 21) “Majjasie is unconcerned with disk failures,” nor do we find Majjasie to be concerned with data repair or recovery at the binary level, as performed by Smith and Hsu. Instead, Majjasie is directed to determining “whether a change has been made to *data related to a product*” (Abstract) and formatting the changes accordingly for transmission to remote systems: “The *product information* may be configured into a *standard format* within the central data base and transferred to remote and disparate user locations

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<sup>6</sup> Thus, we conclude a preponderance of the evidence supports a finding that a PHOSITA would not have *reasonably* combined the cited references in the manner proffered by the Examiner *without having the benefit of Appellants’ claims and/or Specification to use as a guide.*

for use in user's *engineering and manufacturing* information systems.”  
(Majjasie, ¶11, emphasis added).

*Assuming the Role of the PHOSITA at the Time of the Invention*

In considering Appellants' hindsight argument, we are particularly mindful that Patent Examiners begin the examination of the patent application by searching for prior art *using the Applicant's own claims*. Although there appears to be no alternative manner in which to efficiently search for the closest prior art, this *initial step* in the examination process is necessarily hindsight *per se*, because the Examiner has the full benefit of using the Applicant's claims and Specification *as a guide* in conducting the search.

After the initial step of searching locates the closest references to the claimed invention, the Examiner must then *assume the role of the hypothetical person having ordinary skill in the art* (PHOSITA) having *full knowledge of the relevant prior art*, but **no knowledge** of the claimed and disclosed invention under examination.<sup>7 8</sup> It is unfortunately too easy for the

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<sup>7</sup> The person of ordinary skill in the art [“PHOSITA”] is a hypothetical person who is presumed to know the relevant prior art.” *In re GPAC*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (*citing Custom Accessories, Inc. v. Jeffrey-Allan Indus., Inc.*, 807 F.2d 955, 962 (Fed. Cir. 1986)).

<sup>8</sup> *See also* Jonathan J. Darrow, “The Neglected Dimension of Patent Law's PHOSITA Standard,” 23 Harv. J.L. & Tech. 227 (2009) (“Despite its new name, the PHOSITA standard itself traces its origins to nineteenth century case law. In the landmark 1850 case of *Hotchkiss v. Greenwood*, the Supreme Court held unpatentable an improvement on a doorknob, explaining that ‘unless more ingenuity and skill ... were required [to make

Examiner to fall into the trap of omitting this *second essential step* of examination, which *requires* the Examiner to *assume the perspective of the PHOSITA at the time of the invention, as if the application and claims under examination did not exist*. Because of the distortion caused by hindsight bias in the initial examination searching step, we must be especially cautious of suspect “*ex post* reasoning.” *KSR*, 550 U.S. at 421.

Here, we find significant differences between the high-level data (e.g., engineering and manufacturing change orders, ECOs and MCOs) as taught by Majjasie (¶ 31), and the low-level binary data recovery and repair operations taught by Smith (col. 3, ll. 24–30) and Hsu (Fig. 1). Therefore, we are not persuaded the Examiner’s proffered motivations provide sufficient articulated reasoning with some rational underpinning to support the legal conclusion of obviousness: i.e., (1) modifying Majjasie with Smith “*such that data transmissions may be more economical when loss is low*” (Final Act. 4), and (2) modifying the combination of Majjasie and Smith with Hsu “*to tolerate multiple disk failures without losing stored data.*” (Final Act. 5) (Emphases added).

Contrary to the Examiner’s findings regarding motivation (*id.*), we find Majjasie is not directly concerned with “economical” data transmission in terms of cost, nor do Majjasie and Smith discuss any problem involving multiple disk failures. *Thus, contrary to common sense, the Examiner finds*

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the invention] ... than were possessed by an ordinary mechanic acquainted with the business, there was an absence of that degree of skill and ingenuity which constitute essential elements of every invention.’ Other cases described the concept in terms of ‘ordinary skill,’ ‘ordinary mechanical knowledge,’ or similar language.”

*solutions in Smith and Hsu for problems not directly contemplated by Majjasie.* The Examiner’s intent to solve non-existent problems in Majjasie is a factor we consider that weighs against the combination and the ultimate legal conclusion of obviousness.

Further, we note Smith is directed to “chunk” level data recovery, and Hsu is directed to bit-level data recovery using parity (Fig. 1, e.g., RAID drive), as expressly distinguished by Smith: “It should be noted that system 100 provides a chunk level recovery system in one embodiment. Thus, when chunks are lost, the chunks may be regenerated. *This is different than a bit level recovery system where bits in a chunk may be recovered.*” (Col. 4, ll. 24–28) (Emphasis added).<sup>9</sup>

Given the aforementioned evidence of record, we do not see how an artisan possessing *only* the knowledge of Majjasie, Smith, and Hsu, and having common sense, would have *reasonably* combined the disparate references in the manner proffered by the Examiner (Ans. 4–5), to arrive at Appellants’ claimed invention, **without having the benefit of Appellants’ claims and Specification to use as a guide.**

The “familiar elements” the Examiner relies on are from disparate arts, with Majjasie directed to high-level product data, and Smith and Hsu being directed to various forms of low-level binary data error correction. Therefore, we find the first prong of the “analogous art” test is not reasonably met with respect to Smith and Hsu: (1) whether the art is from

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<sup>9</sup> However, we note at least one disclosed embodiment in Smith (col. 1, ll. 55–56) incorporates a parity algorithm, similar to Hsu. (Abstract).

the same field of endeavor, regardless of the problem addressed. *See In re Clay*, 966 F.2d 656, 659 (Fed. Cir. 1992) (citations omitted).

For essentially the same reasons urged by Appellants (App. Br. 17), as discussed above, we are also not convinced the Examiner's application of the low-level binary data recovery and repair operations of Smith and Hsu would have been *reasonably pertinent* to the high-level data of Majjasie, such as engineering change orders (ECOs). Thus, we find the Examiner has not fully developed the record to show how Smith and Hsu meet the second prong of the "analogous art" test: i.e., how these references are reasonably pertinent to the particular problem with which the inventor is involved. *See Clay*, 966 F.2d at 659.

Thus, in balancing the second prong of the hindsight balancing test against the first "predictable result" prong (which incorporates the common sense of the artisan), we find a preponderance of the evidence supports Appellants' argument that the Examiner relied upon impermissible hindsight reconstruction in formulating the rejection. (App. Br. 22.)

Therefore, on this record, and by a preponderance of the evidence, Appellants have persuaded us the Examiner erred. Accordingly, for essentially the same reasons argued by Appellants, as discussed above, we are constrained on this record to reverse the Examiner's rejection under § 103 for claims 1–30, which are all the claims before us on appeal.

Appeal 2014-009116  
Application 12/637,121

DECISION

We reverse the Examiner's rejection of claims 1–30 under 35 U.S.C.  
§ 103(a).

REVERSED