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SCHLUMBERGER INFORMATION SOLUTIONS 10001 Richmond Avenue IP Administration Center of Excellence HOUSTON, TX 77042			HANN, JAY B	
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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* KYRRE BRATVEDT, CARLOS BONETI, JOSTEIN NATVIG,  
and ZHUOYI LI

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Appeal 2019-003607  
Application 14/636,319  
Technology Center 2100

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Before IRVIN E. BRANCH, STACEY G. WHITE, and  
NABEEL U. KHAN, *Administrative Patent Judges*.

BRANCH, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE<sup>1</sup>

Pursuant to 35 U.S.C. § 134(a), Appellant<sup>2</sup> appeals from the Examiner’s decision to reject claims 1–6, 8–15, 17, 18, and 20, which are all of the claims ending in the application. *See* Final Act. 1. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

CLAIMED SUBJECT MATTER

The claims are directed to multi-scale modeling including obtaining a model of a subterranean domain, with the model including a plurality of fine cells and a plurality of subdomains. Spec. ¶ 6. Claim 1, reproduced below with disputed limitations emphasized in *italics*, is illustrative of the claimed subject matter:

1. A method for multi-scale modeling, comprising:
  - obtaining a model of a subterranean domain, the model comprising a plurality of fine cells and a plurality of subdomains, wherein respective subdomains of the plurality of subdomains comprise two or more of the plurality of fine cells;
  - determining a first matrix for the plurality of fine cells based at least in part on a physical property value represented by respective fine cells of the plurality of fine cells;
  - identifying one or more overlapped cells of the plurality of fine cells, wherein each of the one or more overlapped cells is part of at least two of the plurality of subdomains;

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<sup>1</sup> We refer to the Specification, filed February 23, 2017 (“Spec.”); Final Office Action, mailed July 9, 2018 (“Final Act.”); Appeal Briefs I and II, filed, respectively, November 30, 2018 (“Appeal Br. I”) and January 15, 2019 (Appeal Br. II”); Examiner’s Answer, mailed February 14, 2019 (“Ans.”); and Reply Brief, filed April 8, 2019 (“Reply Br.”).

<sup>2</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 Schlumberger Technology Corporation. Appeal Br. 3.

determining, using a processor, a second matrix corresponding to the physical property value, comprising:

determining an intermediate product by multiplying the first matrix by a prolongation matrix, wherein determining the intermediate product comprises *setting a row of the intermediate product to all zeros*, wherein the row corresponds to the plurality of fine cells that are not the one or more overlapped cells and are not part of the at least two of the plurality of subdomains that include the one or more overlapped cells; and

multiplying the intermediate product by a restriction matrix; and

adjusting a fluid flow in the model based at least partially on the second matrix.

#### REJECTION

Claims 1–6, 8–15, 17, 18, and 20 stand rejected under 35 U.S.C. § 112(a) or 35 U.S.C. § 112 (pre–AIA), first paragraph, as failing to comply with the written description requirement. Final Act. 6–7.

#### ANALYSIS

We have reviewed the Examiner’s rejections in light of Appellant’s arguments. We have considered in this Decision only those arguments Appellant actually raised in the Briefs. Any other arguments Appellant could have made but chose not to make in the Briefs are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(iv).

#### 35 U.S.C. § 112

The Examiner finds Appellant’s Specification does not provide written description support for “setting a row of the intermediate product to all zeros,” which is recited in all independent claims. Final Act. 6.

Appellant directs our attention to the Specification at paragraphs 54–60. Appellant’s Specification discloses “may have **rows containing all**

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**zero-value elements** for cells not in the overlap between subdomains.

Accordingly, **these rows can be preset to zero**, as at 218, without conducting matrix multiplication operations, in order to hasten the determination of the intermediate product matrix in 216.” Spec. ¶ 60.

The Examiner reads this passage to mean the cells in a row that are not in the overlap between subdomains may be preset to zero and concludes this is different from setting a row of the intermediate product to all zeros because some of the cells in this row may not be in the overlap between subdomains and therefore be non-zero. Ans. 4–5. Specifically, Examiner stated that “disclosure of an *entire* row of all zeroes would require an explicit unambiguous teaching thereof in order to depart from the ordinary and customary meaning of the restriction and prolongation operators.” *Id.* at 4.

We disagree. We interpret the Specification differently and are therefore persuaded by Appellant’s arguments. Appeal Br. 18; Reply Br. 1–3. We understand Appellant’s Specification to contain an explicit disclosure that some rows are not in the overlap between subdomains and may contain all zeros, in which case these all-zero rows can be preset to zero (Spec. ¶ 60 (“Thus, AP may have rows containing all zero-value elements for cells not in the overlap between subdomains. Accordingly, these rows can be preset to zero.”)). We are not persuaded that every row of would include cells in the overlap and thus, the cited language from the Specification is sufficient to support the recited claim limitation. *See* Br. 18. In our view, this disclosure

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is sufficient to support the written description requirement for the limitation  
“setting a row of the intermediate product to all zeros.”

Accordingly, we do not sustain the rejection of the pending claims.

### DECISION SUMMARY

In summary:

<b>Claims Rejected</b>	<b>35 U.S.C. §</b>	<b>Basis</b>	<b>Affirmed</b>	<b>Reversed</b>
1-6, 8-15, 17, 18, 20	112, first ¶	Written Description		1-6, 8-15, 17, 18, 20

REVERSED