Algorithm 2 PTISSJ_Part(A1Rtree $tree$, Timestamp t, Threshold M)

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1: LeafEntrySet leR ← tree.RangeQuery(t);
2: HashTable XRegionHT1← ∅
3: for each leaf entry le in leR do
4:    OTTTuple rd1←OTT[le.Ptr_p], rd2←OTT[le.Ptr_c];
5:    DeviceID dev1←rd1.deviceID, dev2←rd2.deviceID;
6:    ObjectID o←rd1.objectID;
7:    if t ≥ rd1.t_s then
8:       if CovD2X is not null then
9:          XRegion x ← CovD2X(dev1);
10:         XRegionHT1[x] ← {(o, 1.0)} ∪ XRegionHT1[x];
11:      else
12:         for each XRegion x in IntD2X(dev1) do
13:            double p← pr(Θ(o, x, t));
14:            if p > M then
15:               XRegionHT1[x] ←
                        {(o, p)} ∪ XRegionHT1[x];
16:   else
17:      Boolean flag ← true;
18:      CellSet CSet ← D2C(dev1)∩D2C(dev2);
19:      if |CSet|=1 then
20:         Cell c ← the singleton element of CSet;
21:         if CovC2X(c) is not null then
22:            XRegion x ← CovC2X(c);
23:            XRegionHT1[x] ← {(o, 1.0)}∪XRegionHT1[x];
24:            flag ← false;
25:      if flag then
26:         for each cell c in CSet do
27:            for each XRegion x in CovC2X(c) ∪ IntC2X(c)
               do
28:               double p ← pr(Θ(o, x, t));
29:               if p > M then
30:                  XRegionHT1[x] ←
                           {(o, p)} ∪ XRegionHT1[x];
31: return XRegionHT1;
```