Require: a d-sequence $D = R_1, \dots R_T$, a map M, the object maximum speed $v_{\rm max}$. **Ensure:** a p-trajectory p_1, \dots, p_T . Forward phase: 1: $C(1) = Cells(R_1)$ 2: for all $c \in C(1)$ do

Algorithm 1 Exhaustive RFID-data cleaning algorithm.

 $p_1^{\text{fw}}(c) = \frac{1}{|C(1)|}$ 4: for t=2 to T do

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$$t=2$$
 to T do
5: $C(t) = \{c \mid c \in Cells(R_t) \land \exists c' \in C(t-1) \text{ s.t. } \frac{d_{\min}(c',c)}{\Delta} \leq v_{\max}\}$

6: for all $c \in C(t)$ do 7:

$$p_t^{\text{fw}}(c) = \sum_{c' \in C(t-1)} p_{t-1}^{\text{fw}}(c') \cdot p^{\text{mov}}(v \ge \frac{d_{\min}(c',c)}{\Delta})$$

Backward phase:

8: **for**
$$t = T$$
 downTo 1 **do**
9: **for all** $c \in C(t)$ **do**

9: 10: if t = T then 11:

19: **return** p_1, \cdots, p_T

if
$$t=T$$
 then $p_T^{\mathrm{bw}}(c)=rac{1}{|C(T)|}$ else

12: 13:

14:

else
$$p_t^{\text{bw}}(c) = \sum_{c' \in C(c)} \sum_{c' \in C(c)} p_t^{\text{bw}}(c)$$

else

else
$$p_t^{\text{bw}}(c) = \sum_{c' \in C(t+1)} p_{t+1}^{\text{bw}}(c') \cdot p^{\text{mov}}(v \ge \frac{d_{\min}(c,c')}{\Delta})$$

$$\sum_{(t+1)} p_{t+1}^{\text{bw}}(c') \cdot p^{\text{mod}}$$

if $p_t^{\text{bw}}(c) = 0$ then $C(t) = C(t) \setminus \{c\}$ else

15:

 $p_t(c) = p_t^{\text{fw}}(c) \cdot p_t^{\text{bw}}(c) \cdot h(R_t|c)$

16: 17:

18: Project p_1, \dots, p_T on \mathcal{L} and normalize