Algorithm 1 UPDATEFLOCKS algorithm

Require: RDD of current flocks $\mathcal{F}$, RDD of new new flocks $\mathcal{N}$ and the ε value.

$\mathcal{R} \leftarrow \mathcal{N} \bowtie_{d=\varepsilon} \mathcal{F}$ ▷ Distributed spatial join supported by GeoSpark
$\mathcal{J} \leftarrow \emptyset$ ▷ a list of redundant flocks
for each $entry \in \mathcal{R}$ **do**
    $newflock \leftarrow entry(0)$ ▷ a Flock from $\mathcal{N}$
    $oldflocks \leftarrow entry(1)$ ▷ a list of Flocks from $\mathcal{F}$ intersected by $newflock$
    for each $oldflock \in oldflocks$ **do**
        if $newflock \subset oldflock$ **then**
            $\mathcal{J} \leftarrow \mathcal{J} \cup newflock$
        end if
    end for
end for
$\mathcal{F} \leftarrow \mathcal{F} \cup (\mathcal{N} \setminus \mathcal{J})$

Ensure: RDD of updated flocks $\mathcal{F}$.