PFLOCK Report

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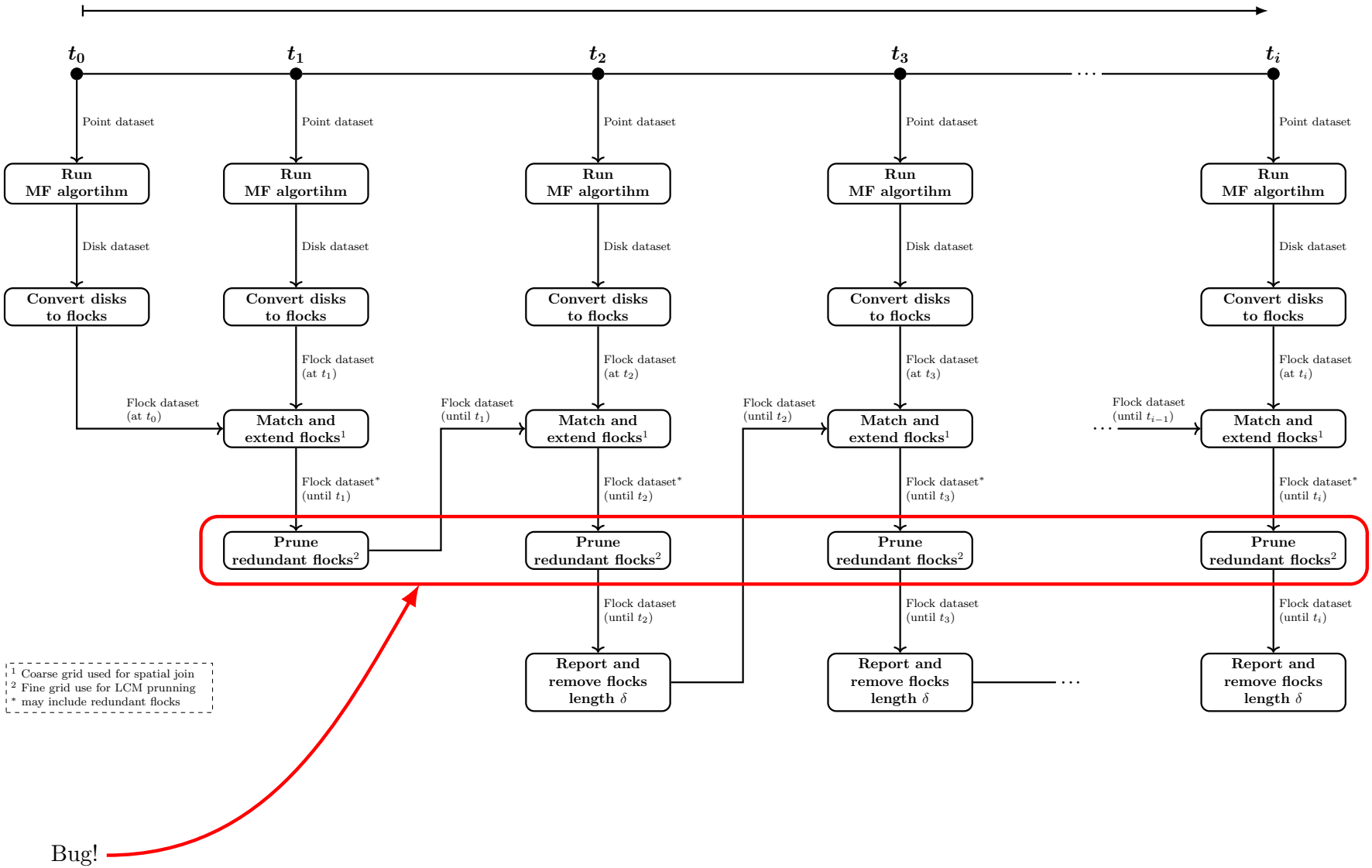
A problem with the time to time approach...



What should "Prune redundant flocks" do...

Current flocks

Start	End	Trajectories
0	1	A B C D
0	1	A C F
0	1	B F G H
0	1	B H I J
0	1	C E H
	⋮	

New flocks

Start	End	Trajectories
1	1	A B C
1	1	A C F I
1	1	B H I
1	1	D F K
	⋮	

Resulting flocks

Start	End	Trajectories
0	1	A B C D
0	1	A C F
0	1	B F G H
0	1	B H I J
0	1	C E H
1	1	A C F I
1	1	D F K
	⋮	

What I did wrong...

Current flocks

Start	End	Trajectories
0	1	A B C D
0	1	A C F
0	1	B F G H
0	1	B H I J
0	1	C E H
	⋮	

New flocks

Start	End	Trajectories
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1	1	A C F I
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	⋮	

Resulting flocks

Start	End	Trajectories
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0	1	A C F
0	1	B F G H
0	1	B H I J
0	1	C E H
1	1	A B C
1	1	A C F I
1	1	B H I
1	1	D F K
	⋮	

A possible solution...

Algorithm 1 updateFlocks algorithm

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

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

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