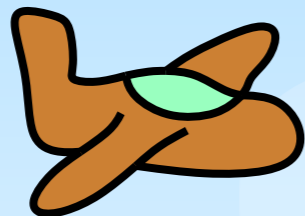
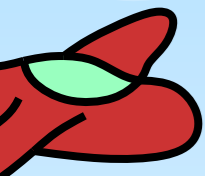
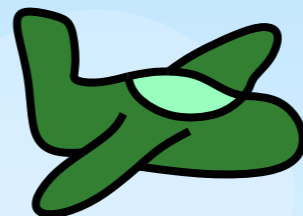


OPTIMIZING AIRSPACE CLOSURE WITH RESPECT TO POLITICIAN'S EGOS

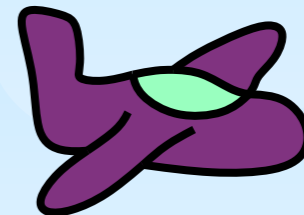
Irina Kostitsyna



Maarten Löffler



Valentin Polishchuk



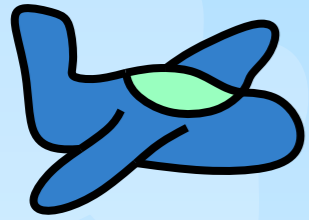
THE PROBLEM

THE PROBLEM

“Aircraft arrivals get delayed by unscheduled airspace closure.”

THE MODEL

THE MODEL



THE MODEL



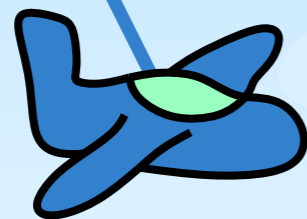
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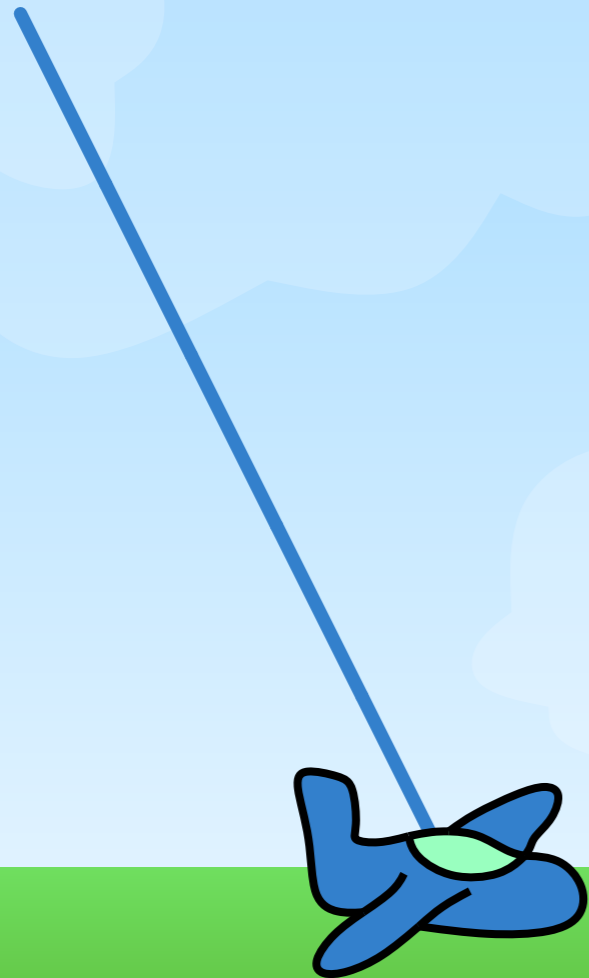
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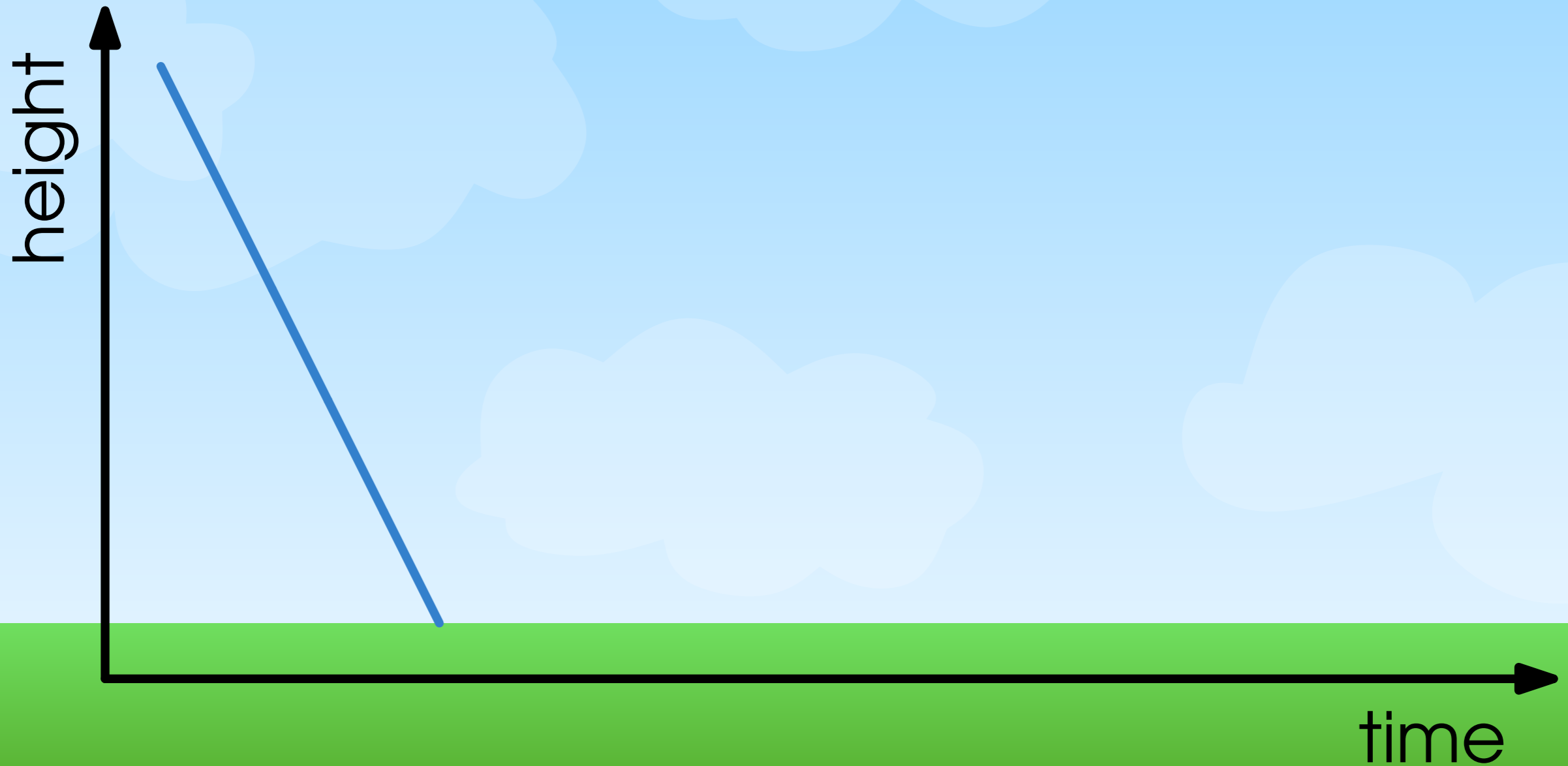
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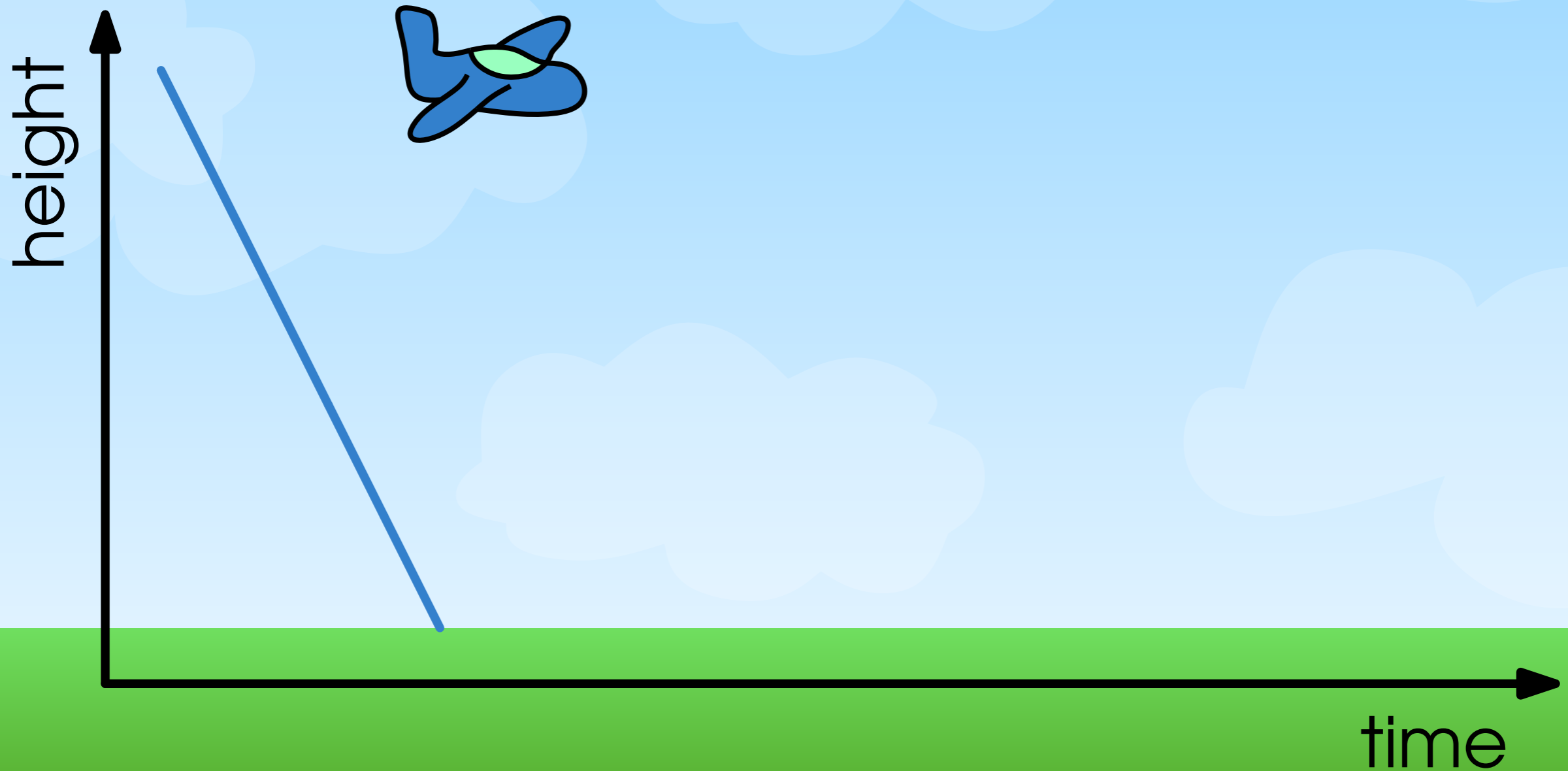
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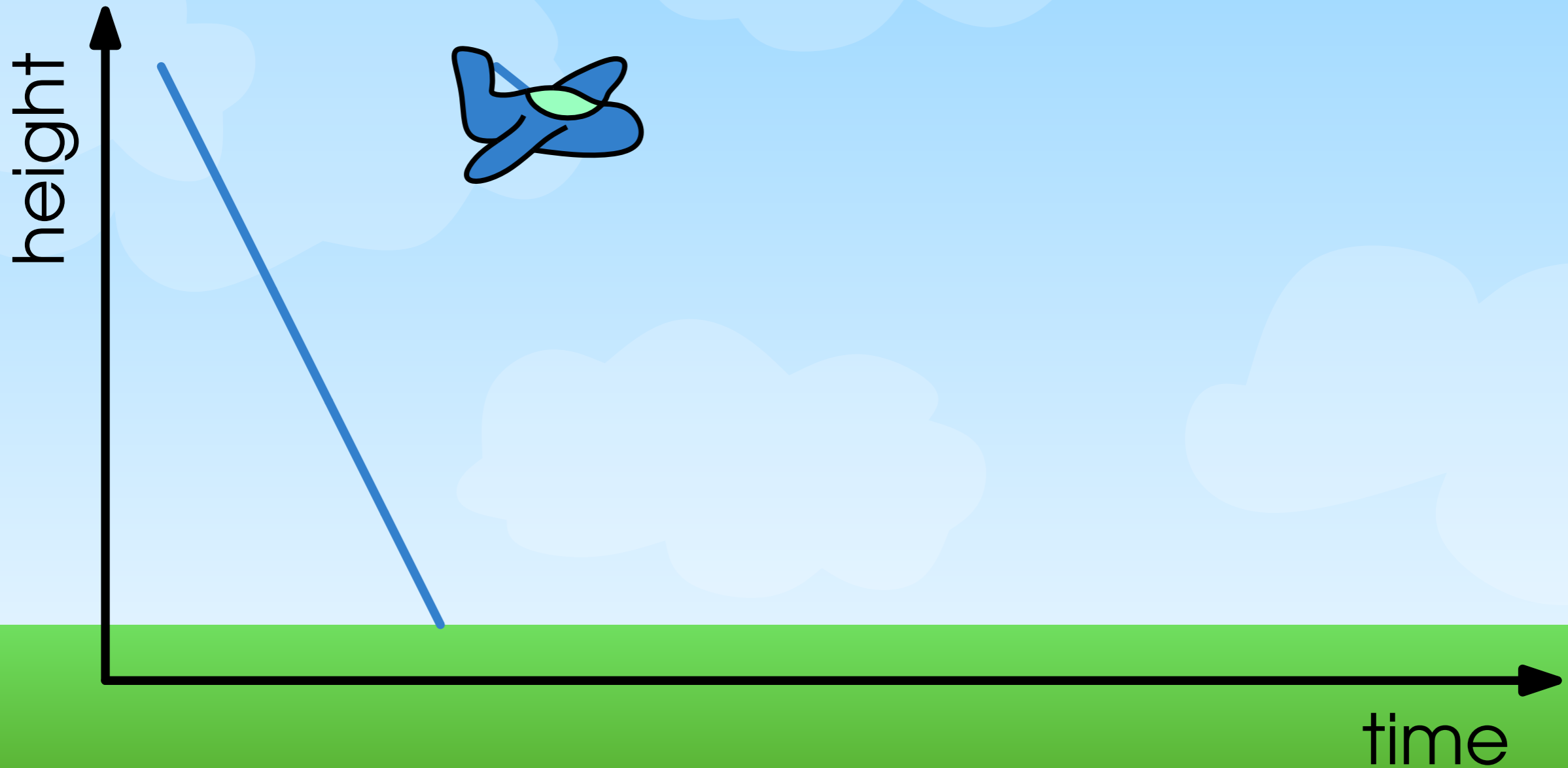
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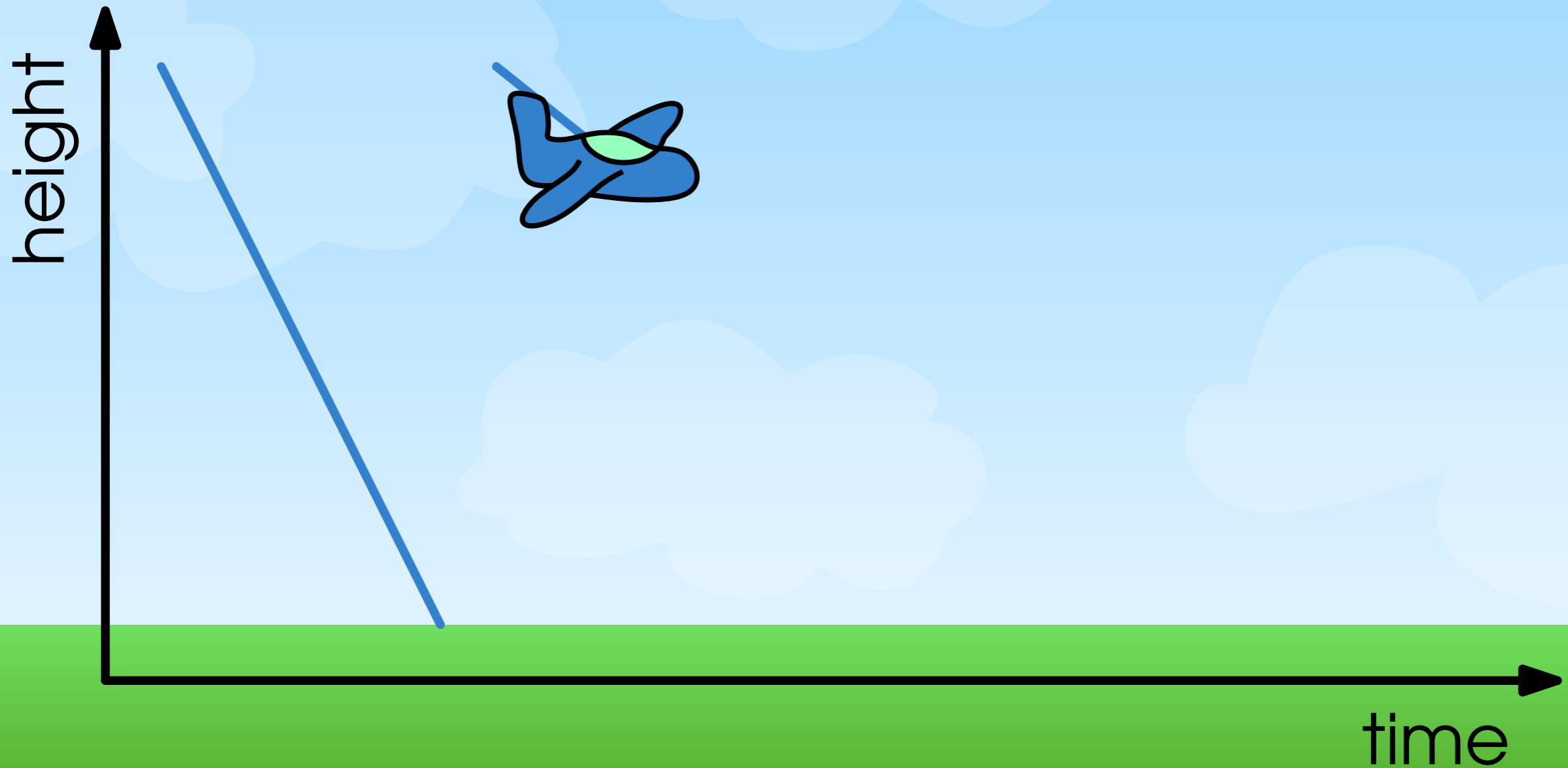
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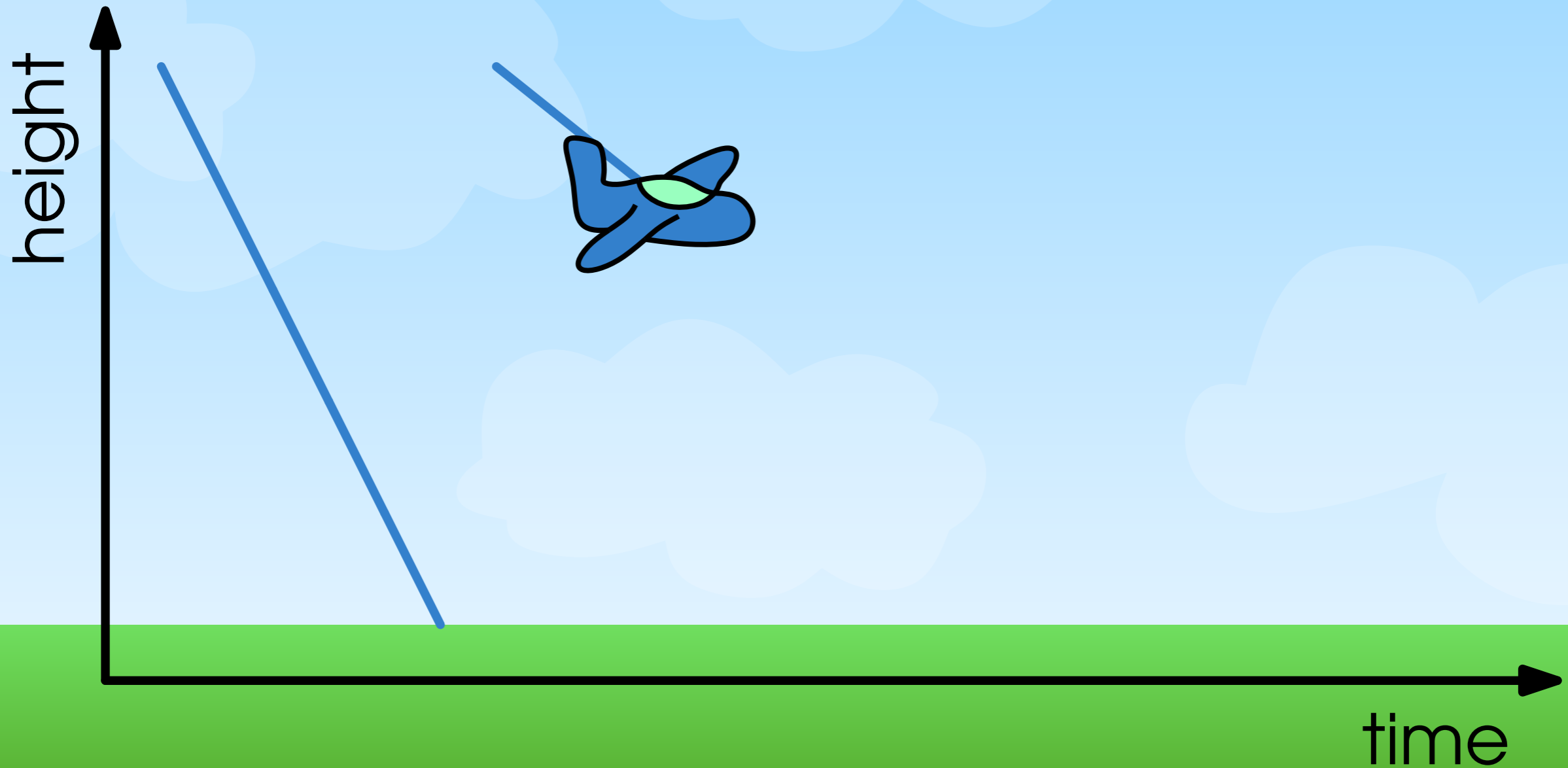
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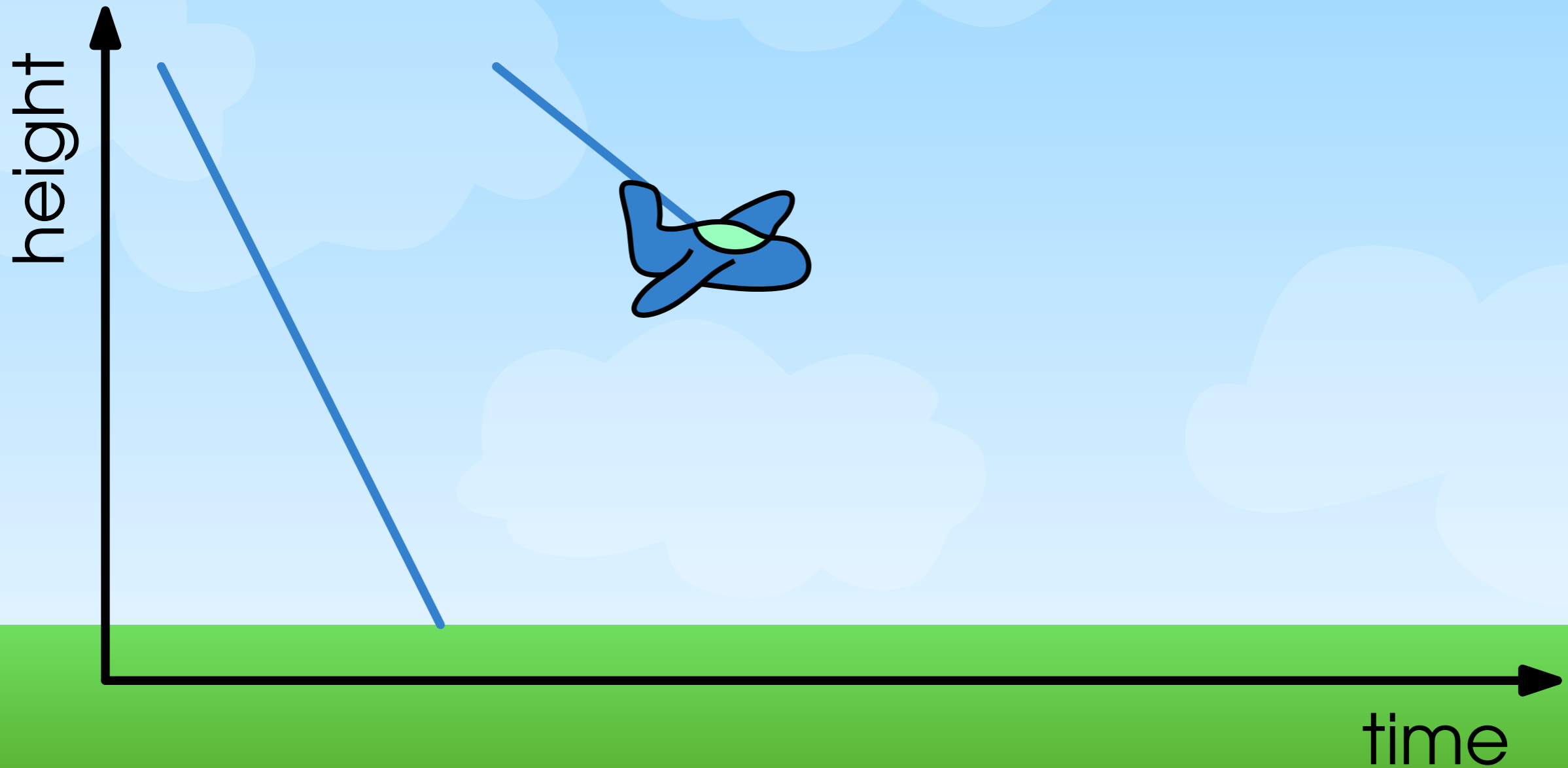
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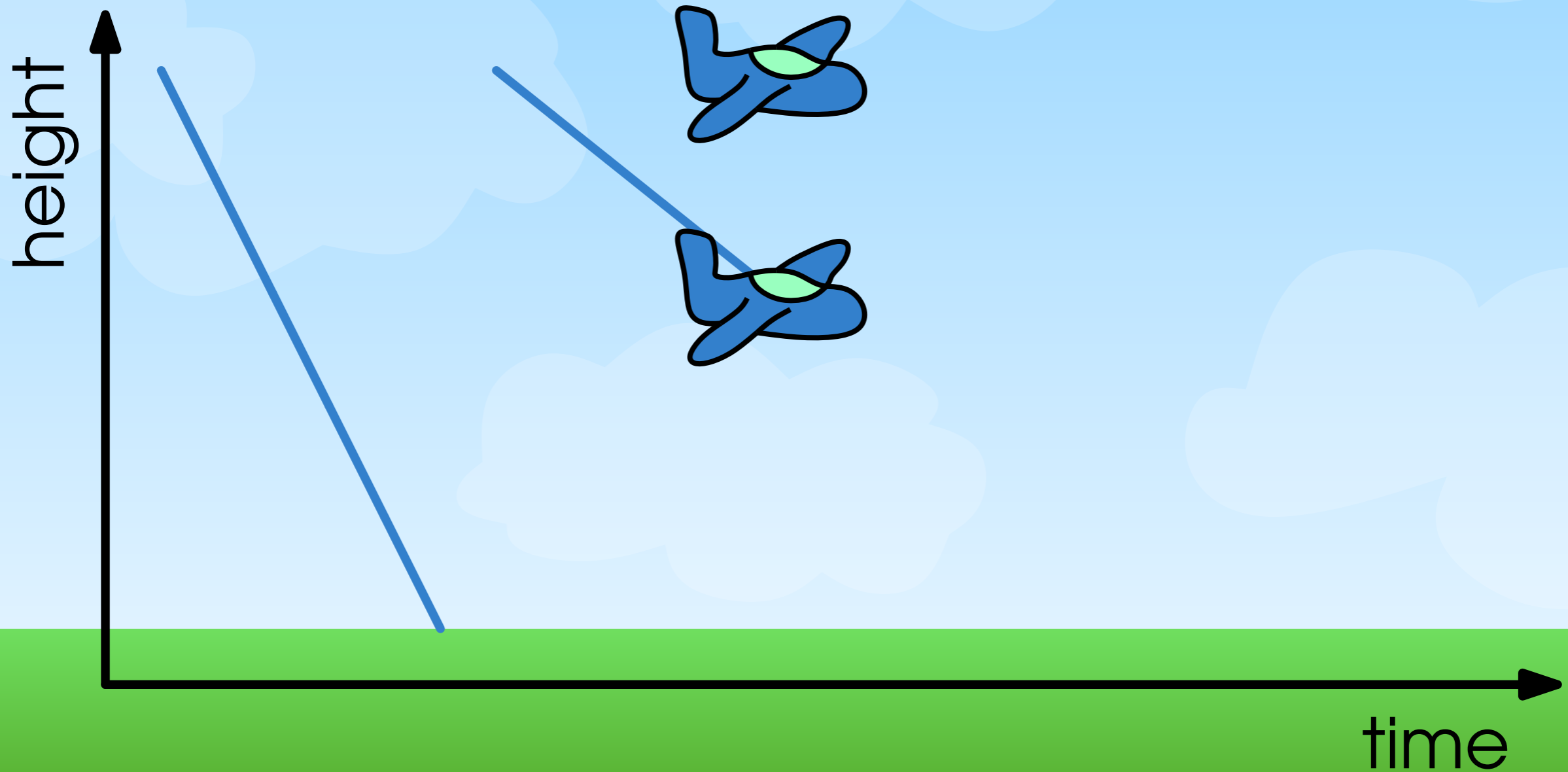
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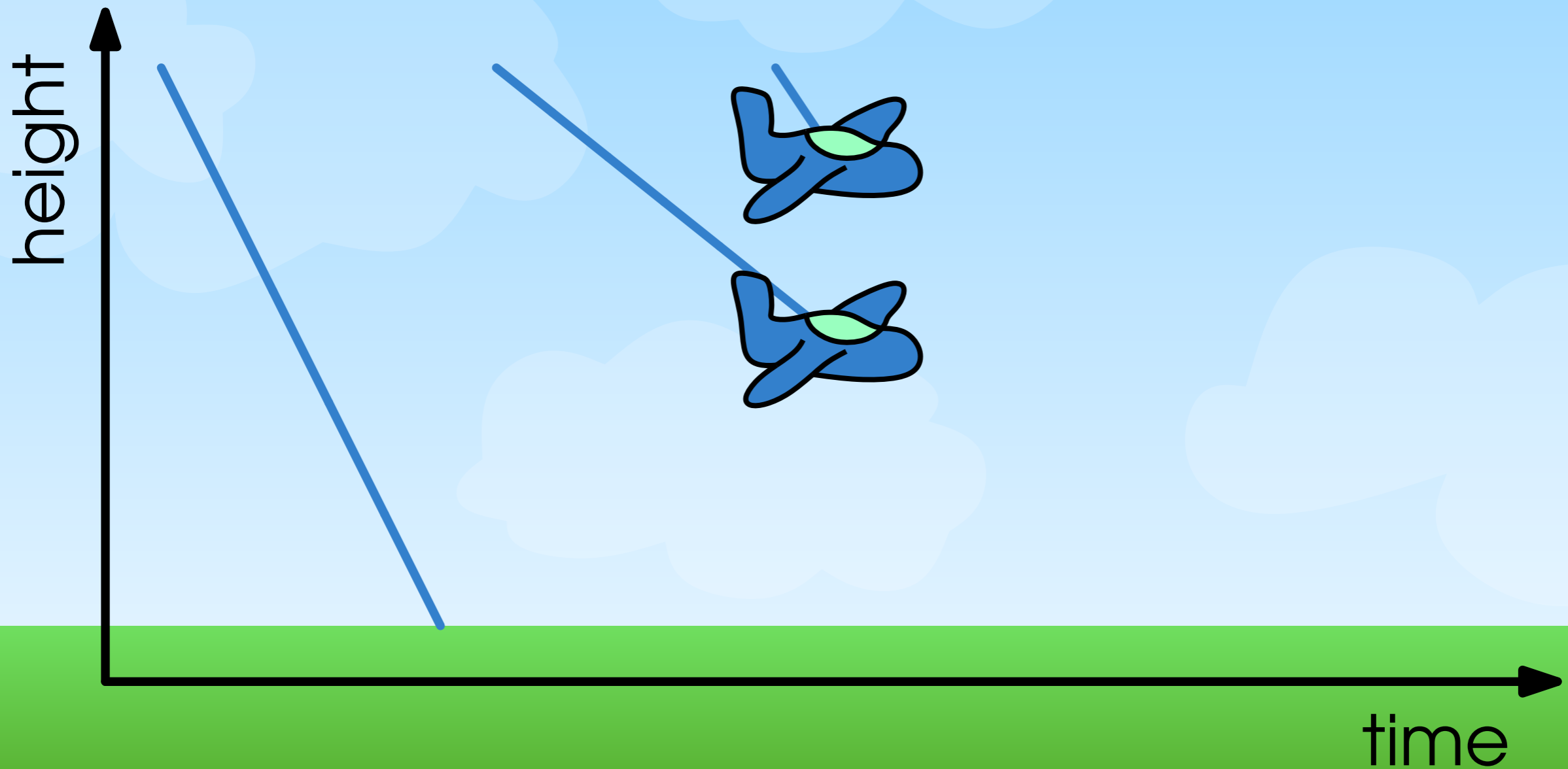
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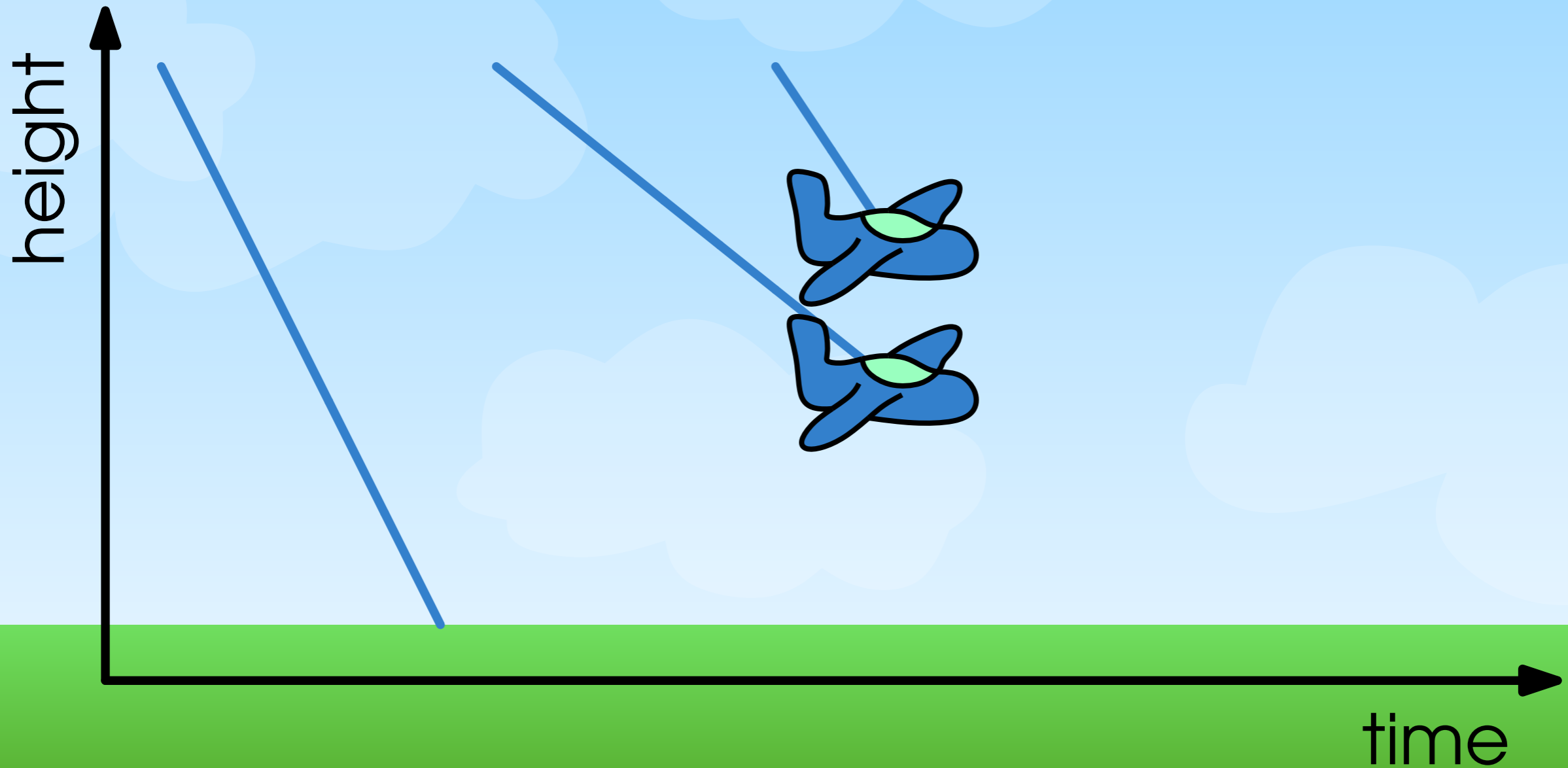
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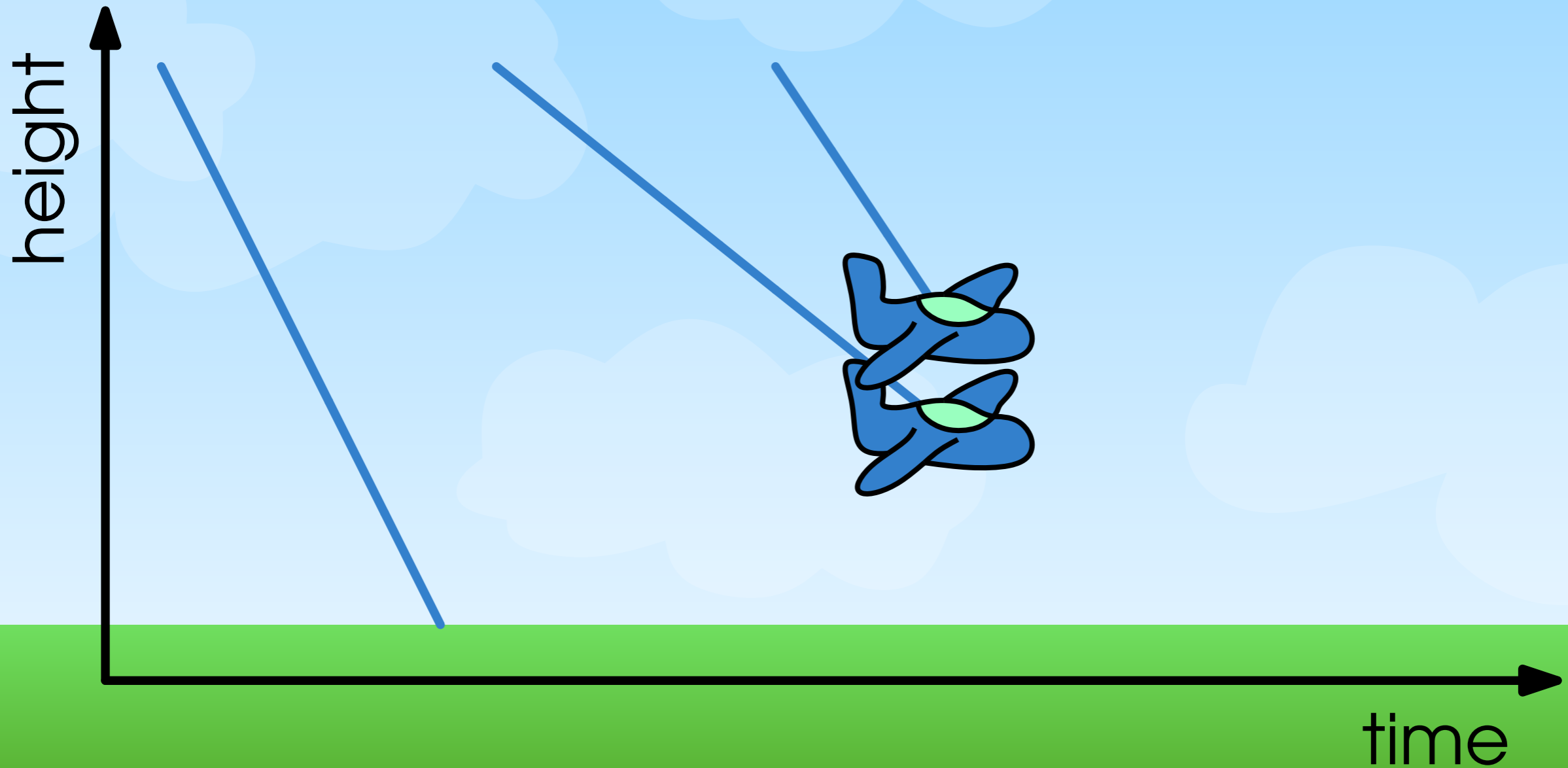
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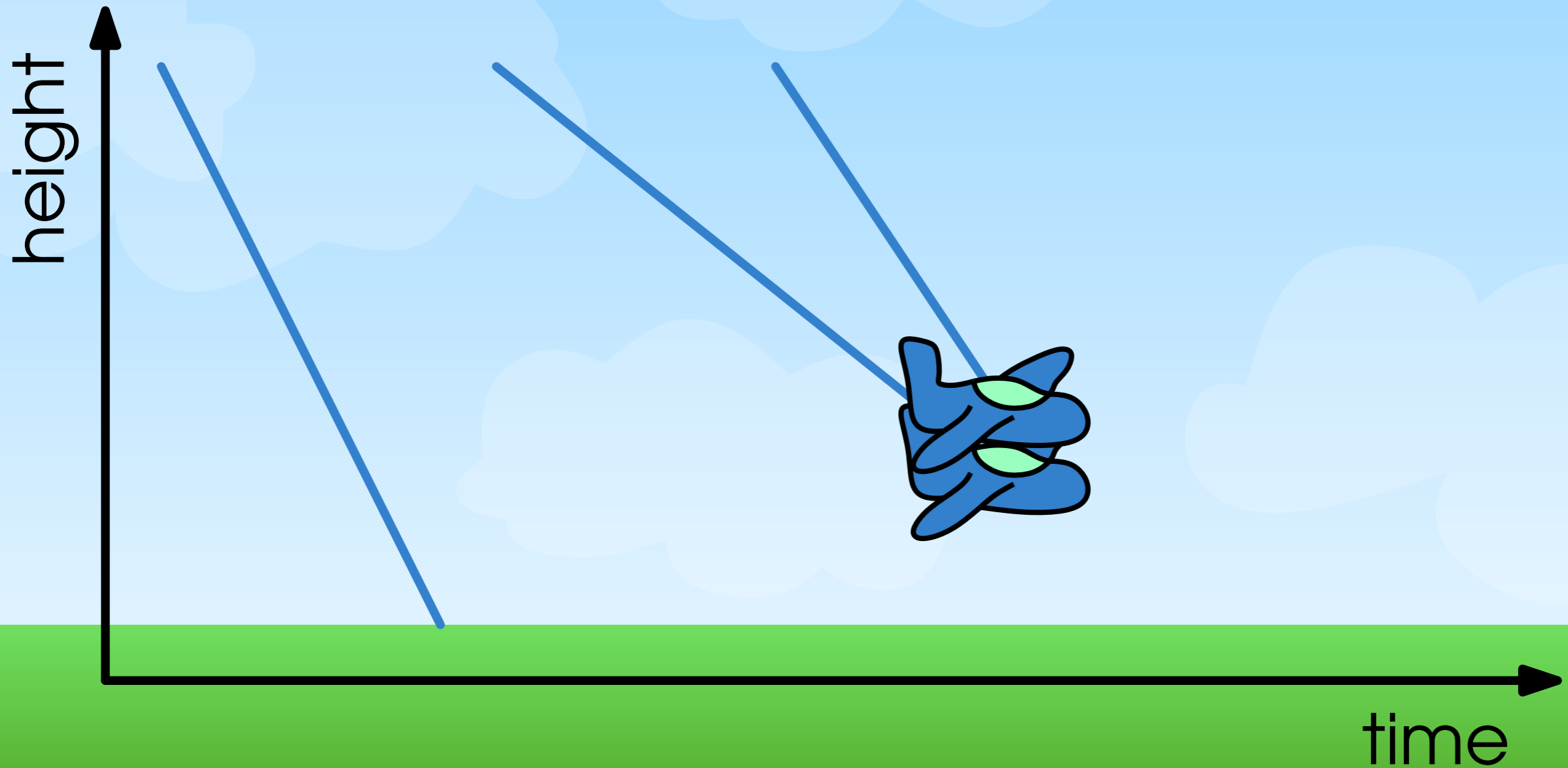
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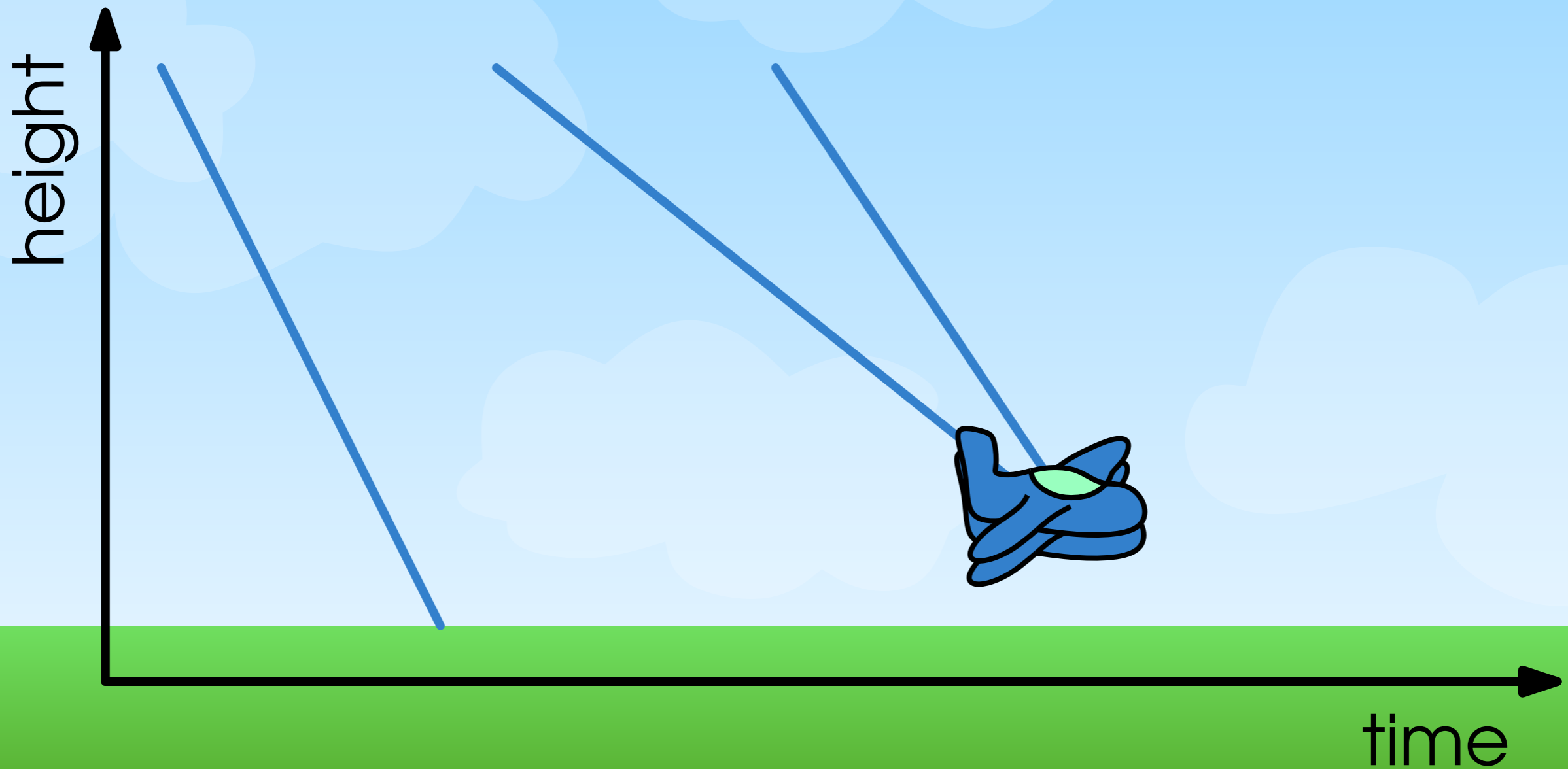
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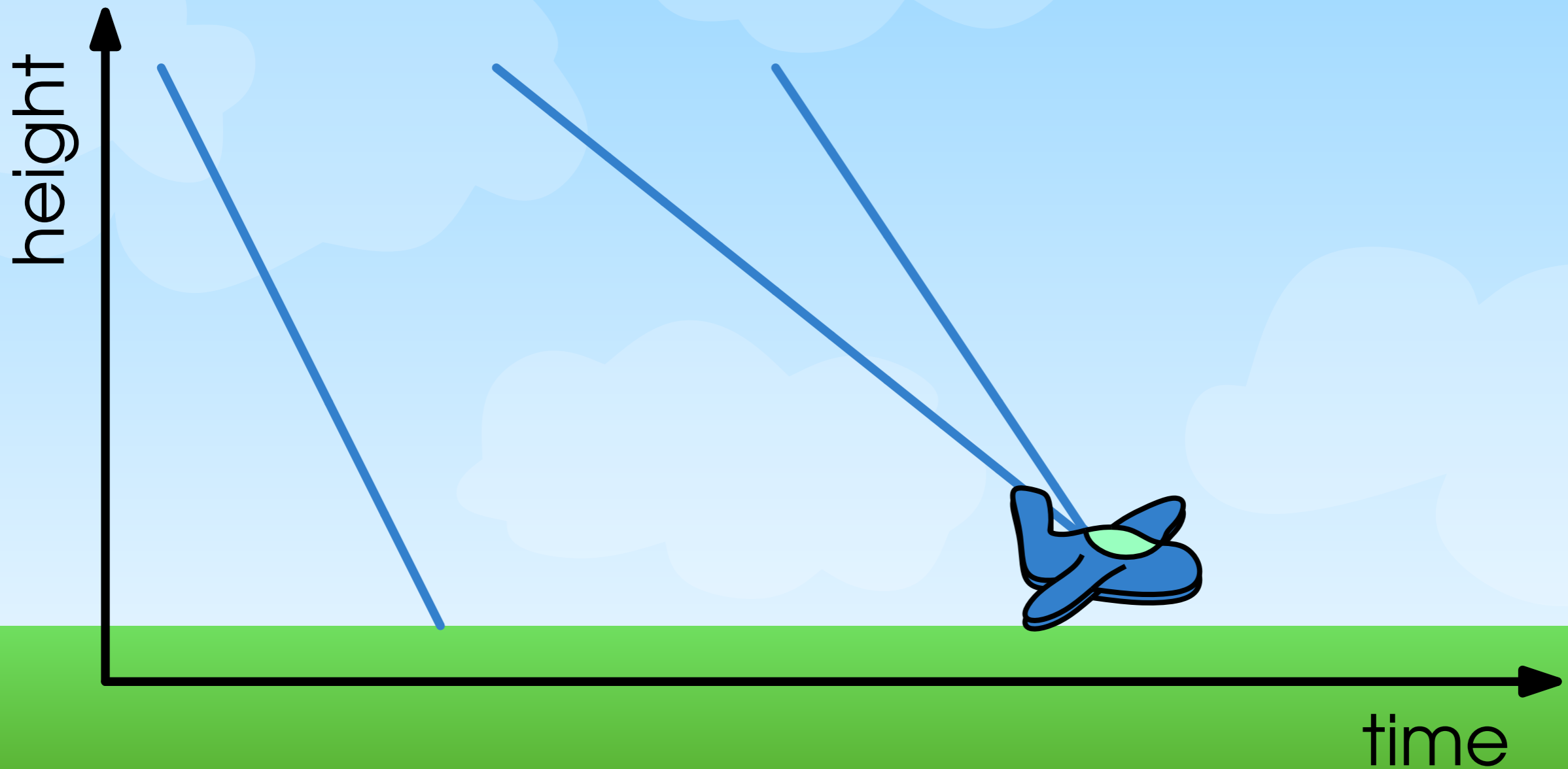
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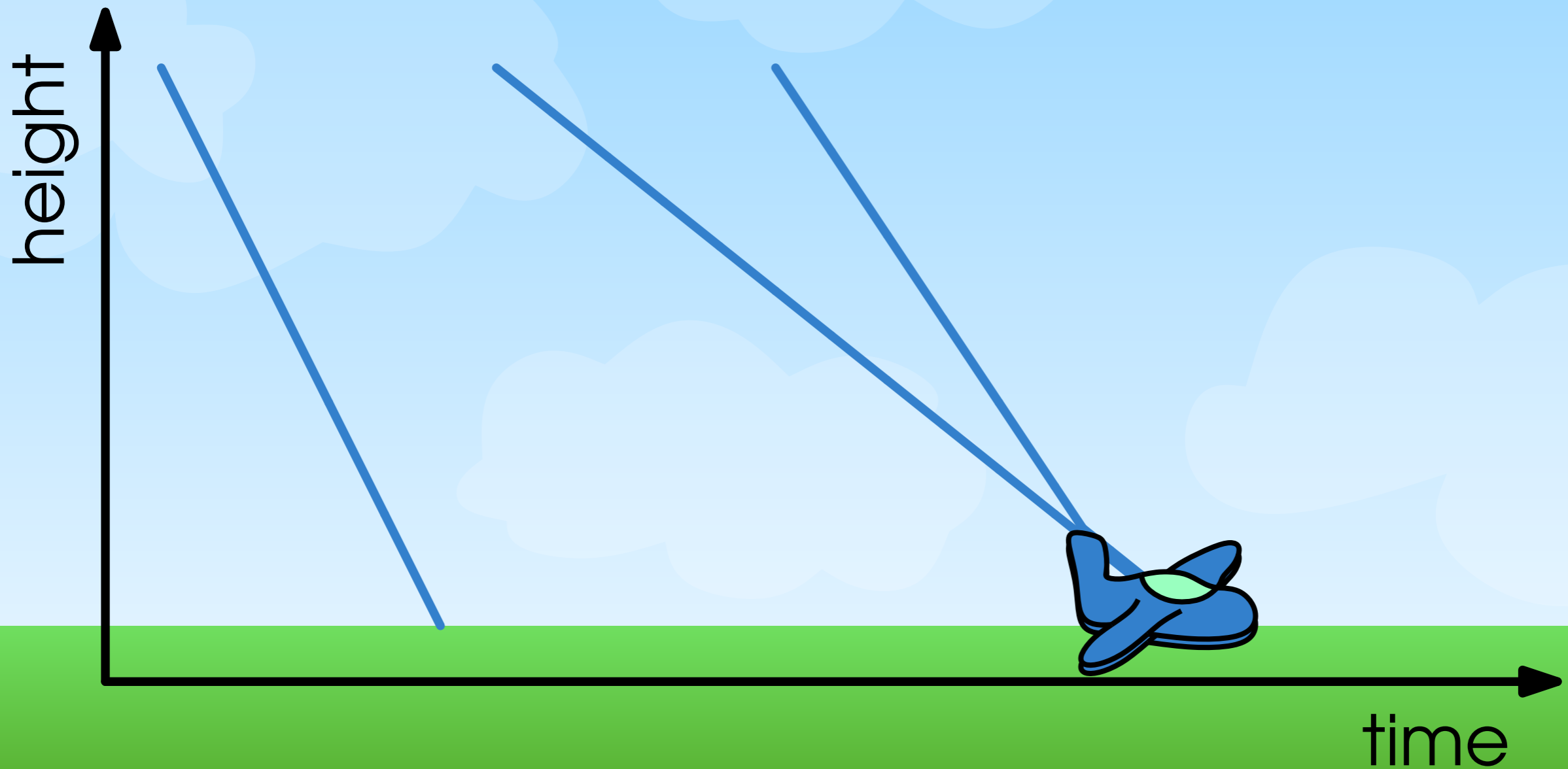
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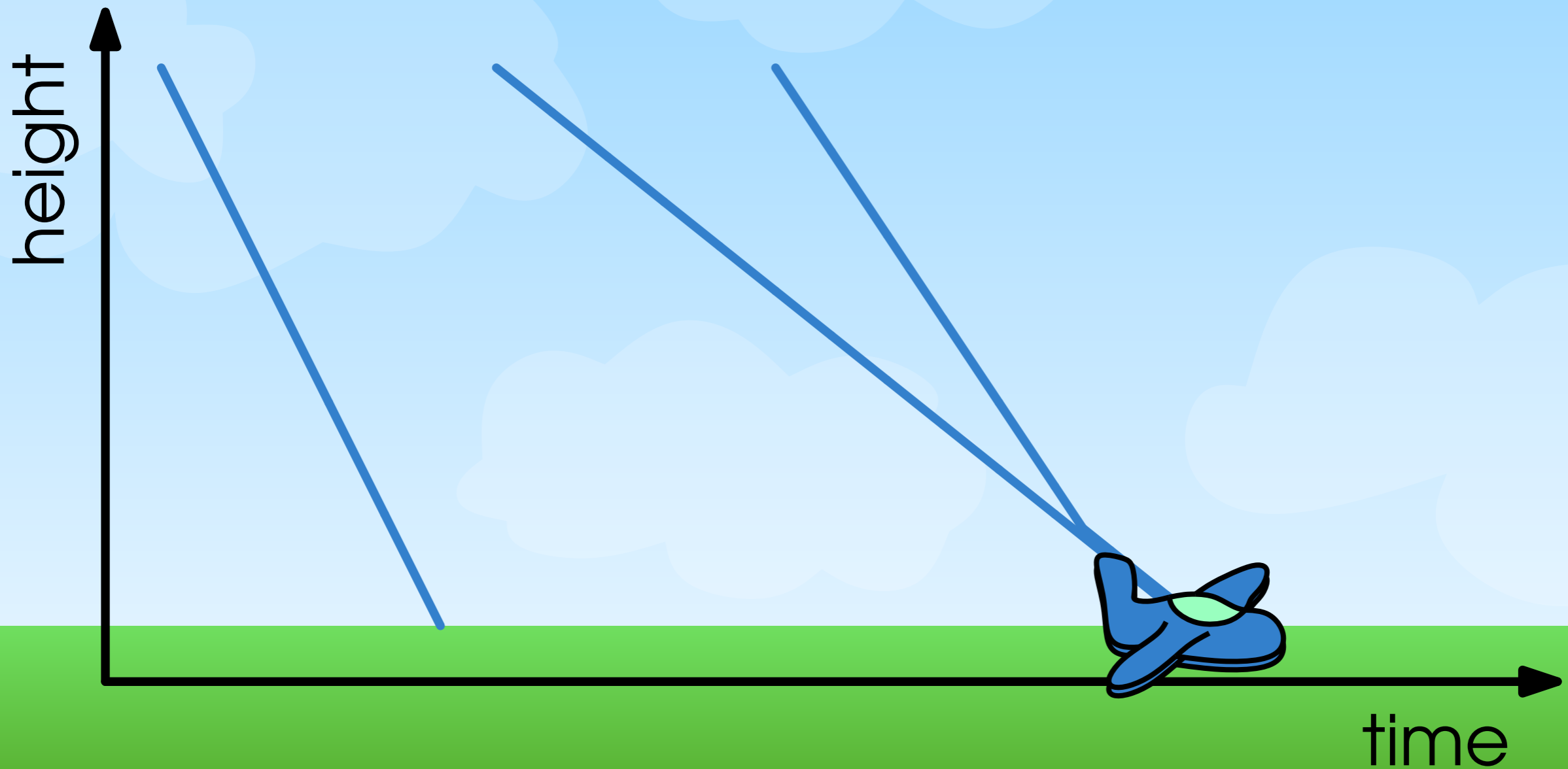
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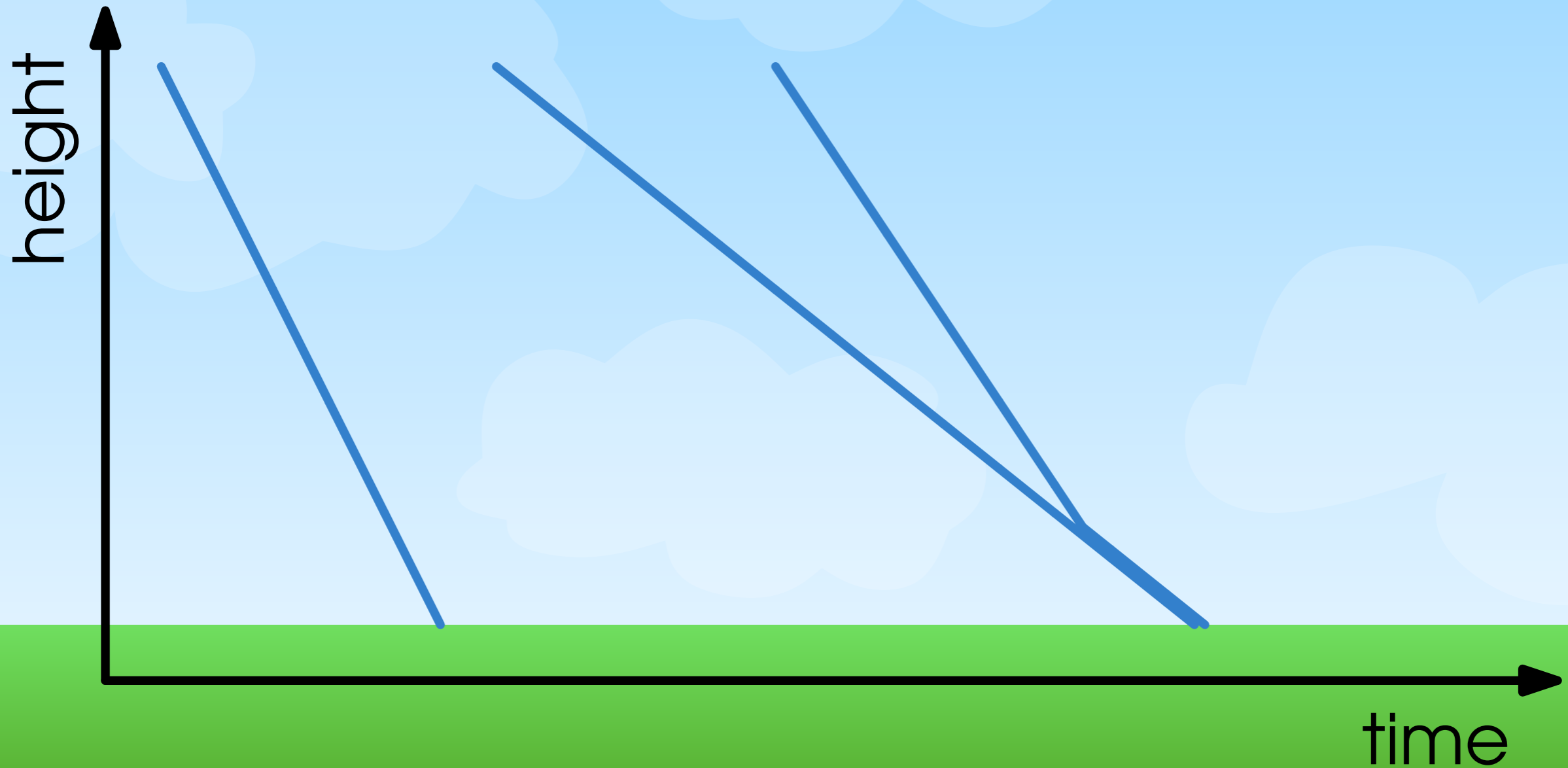
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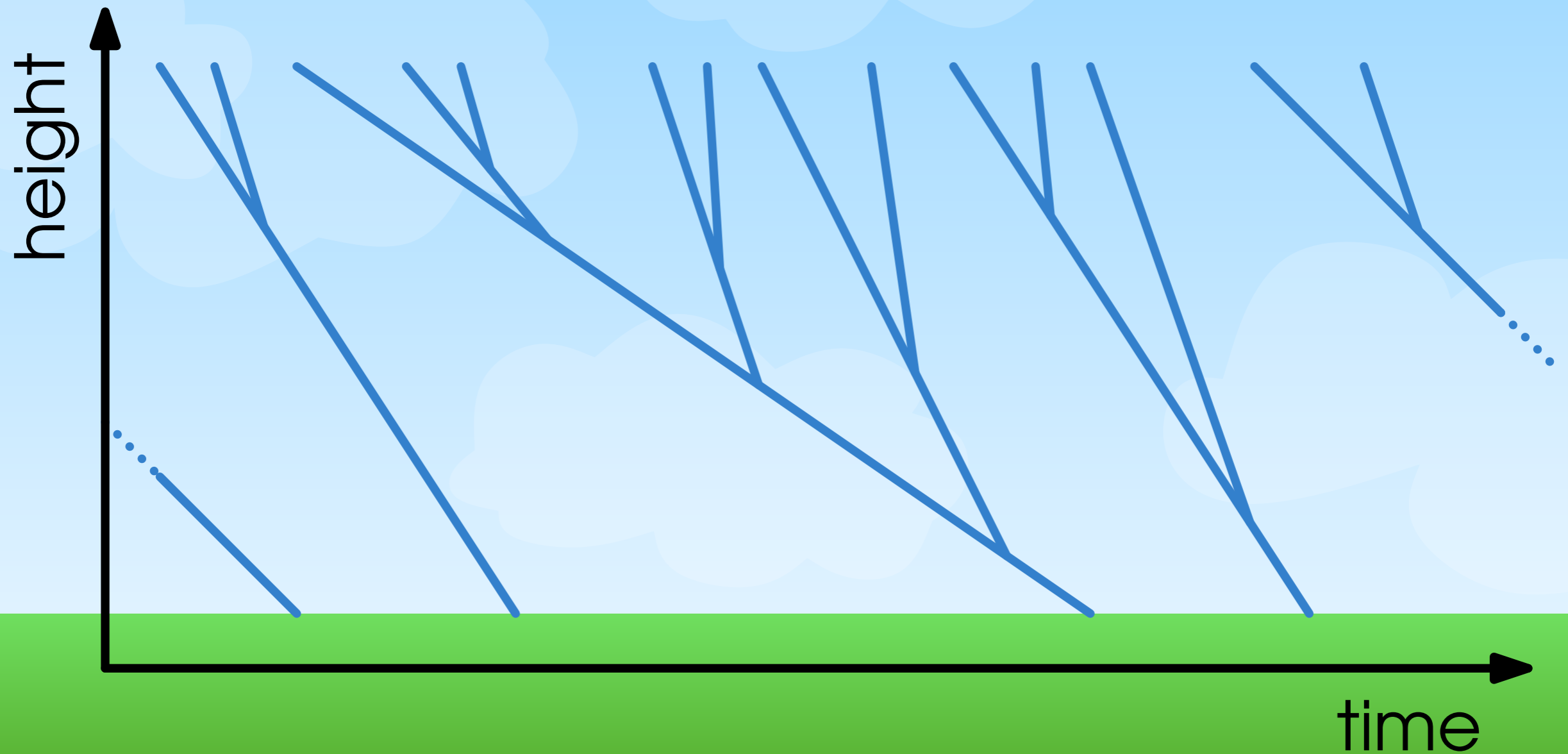
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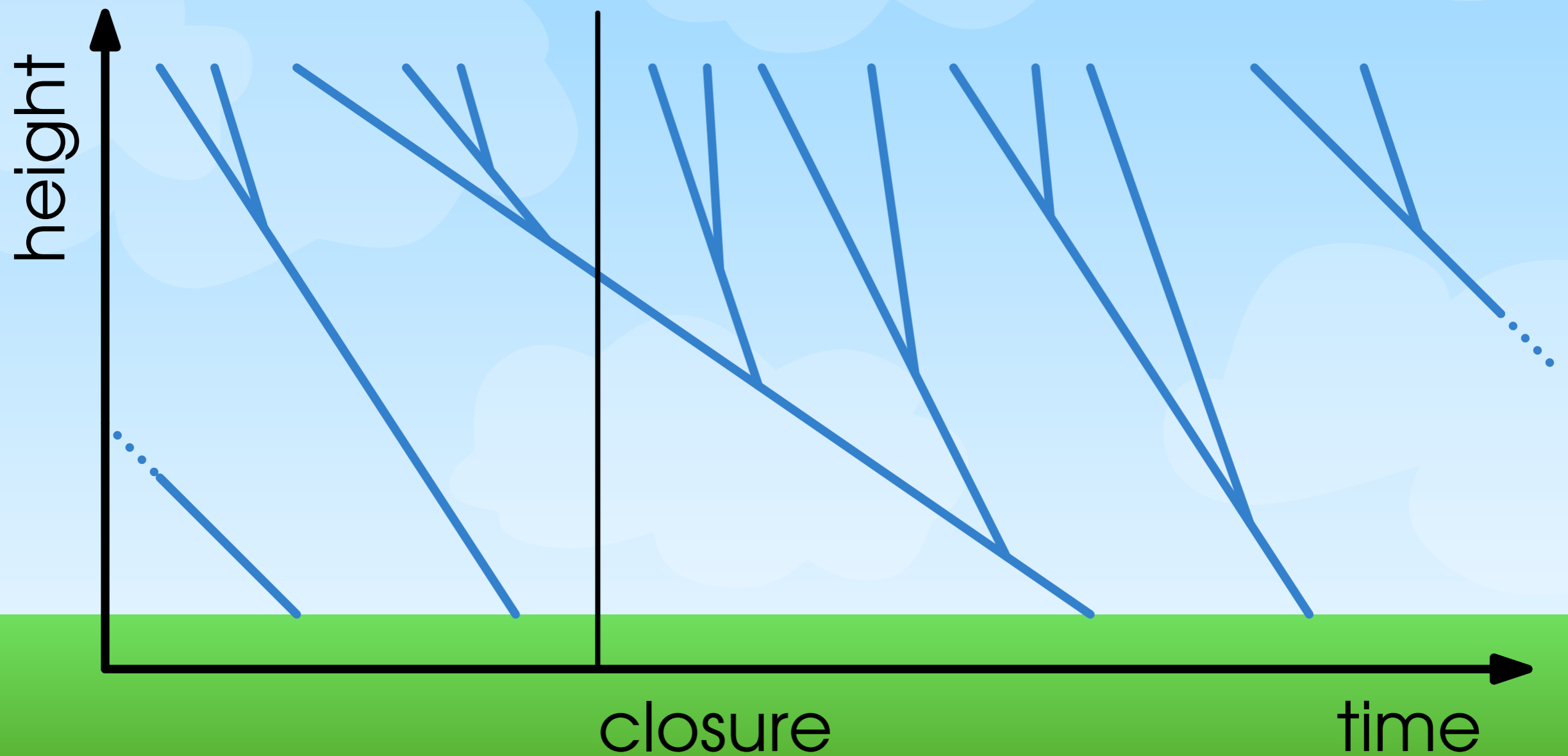
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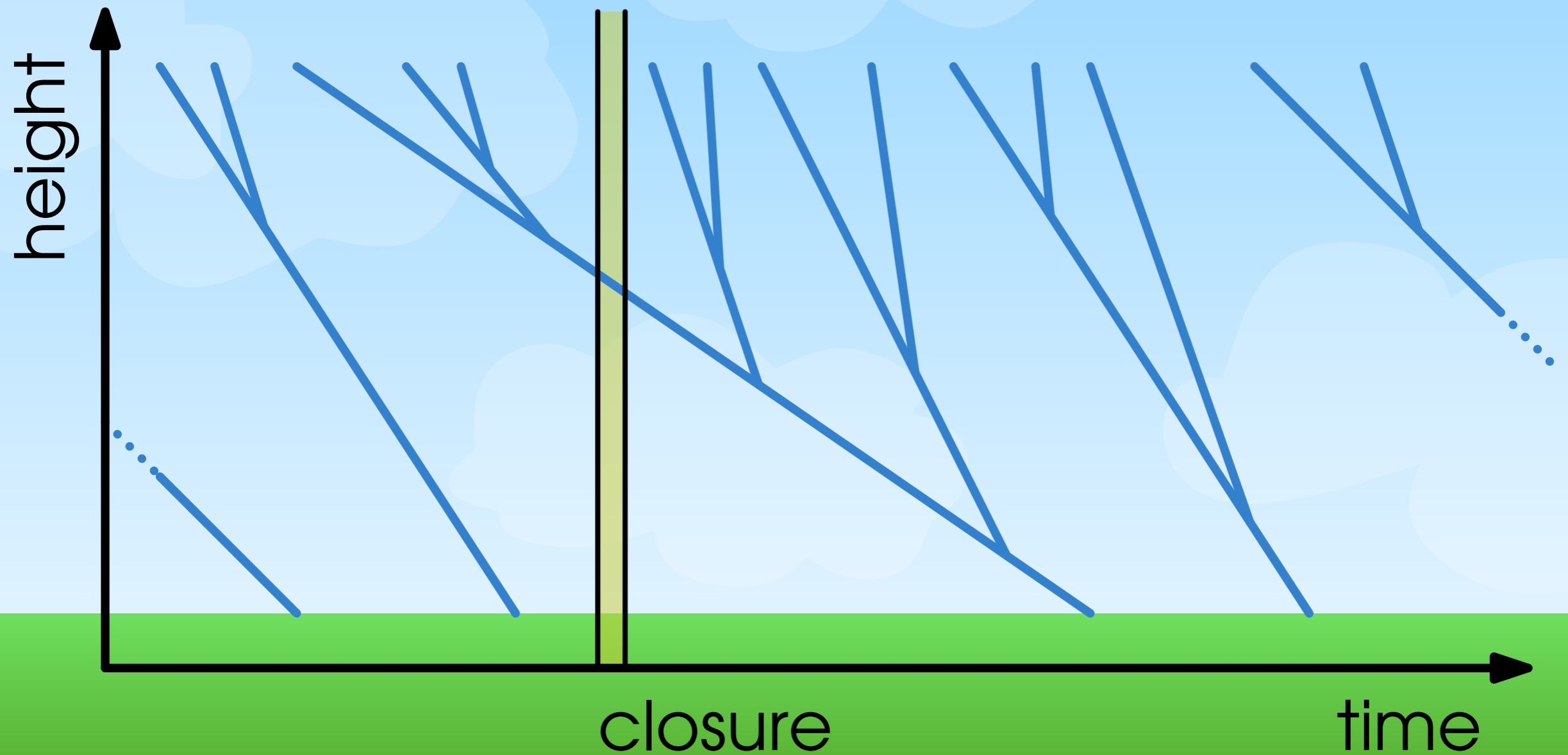
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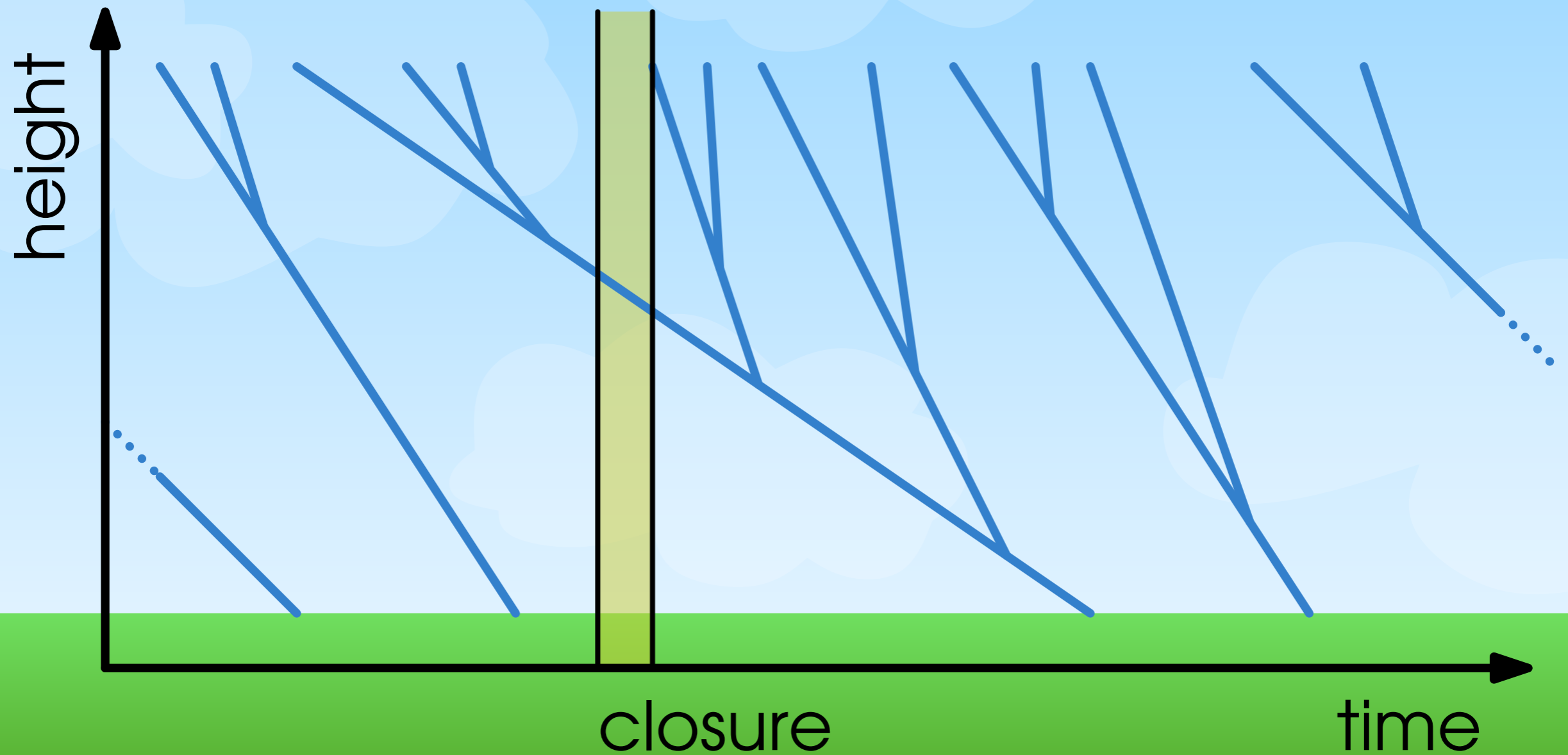
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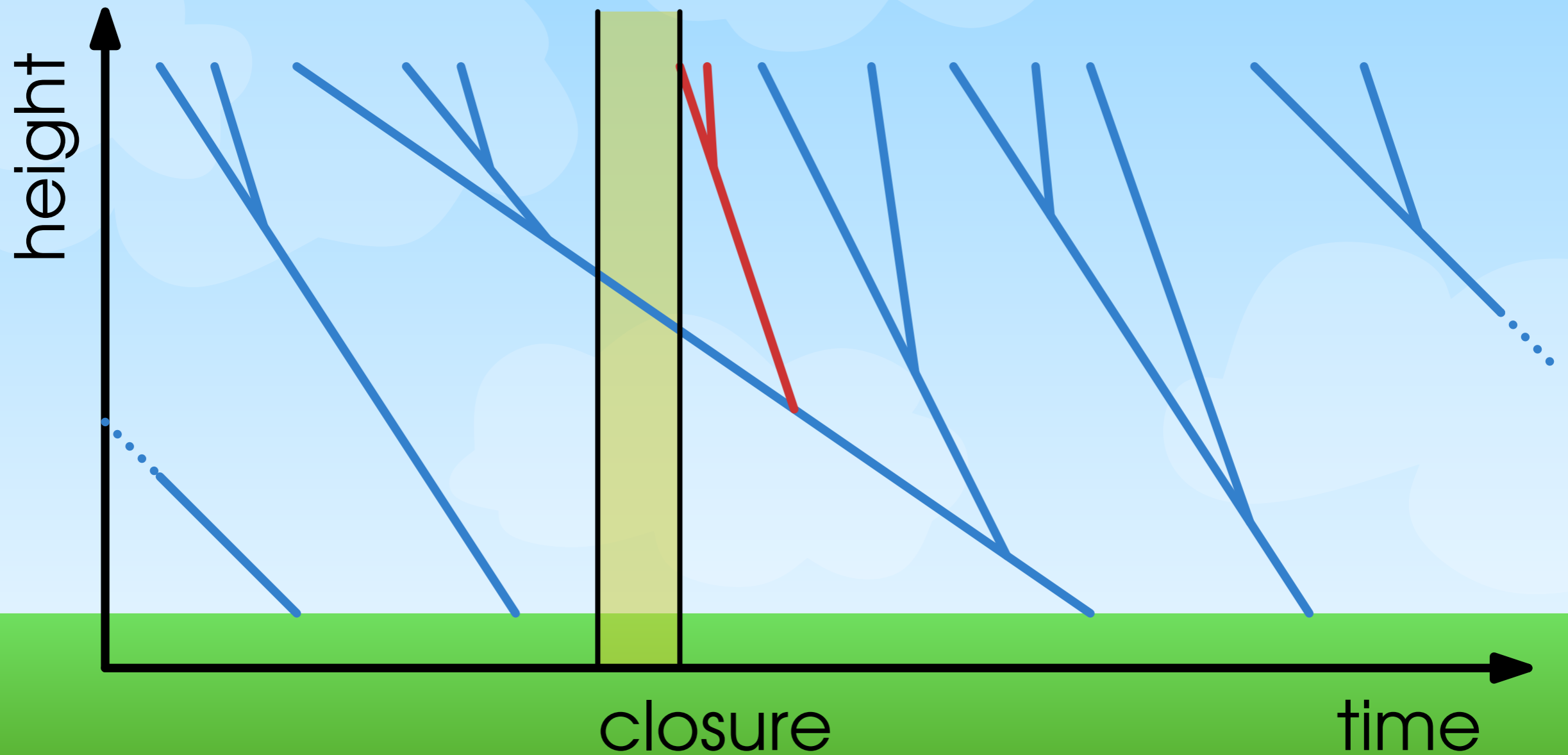
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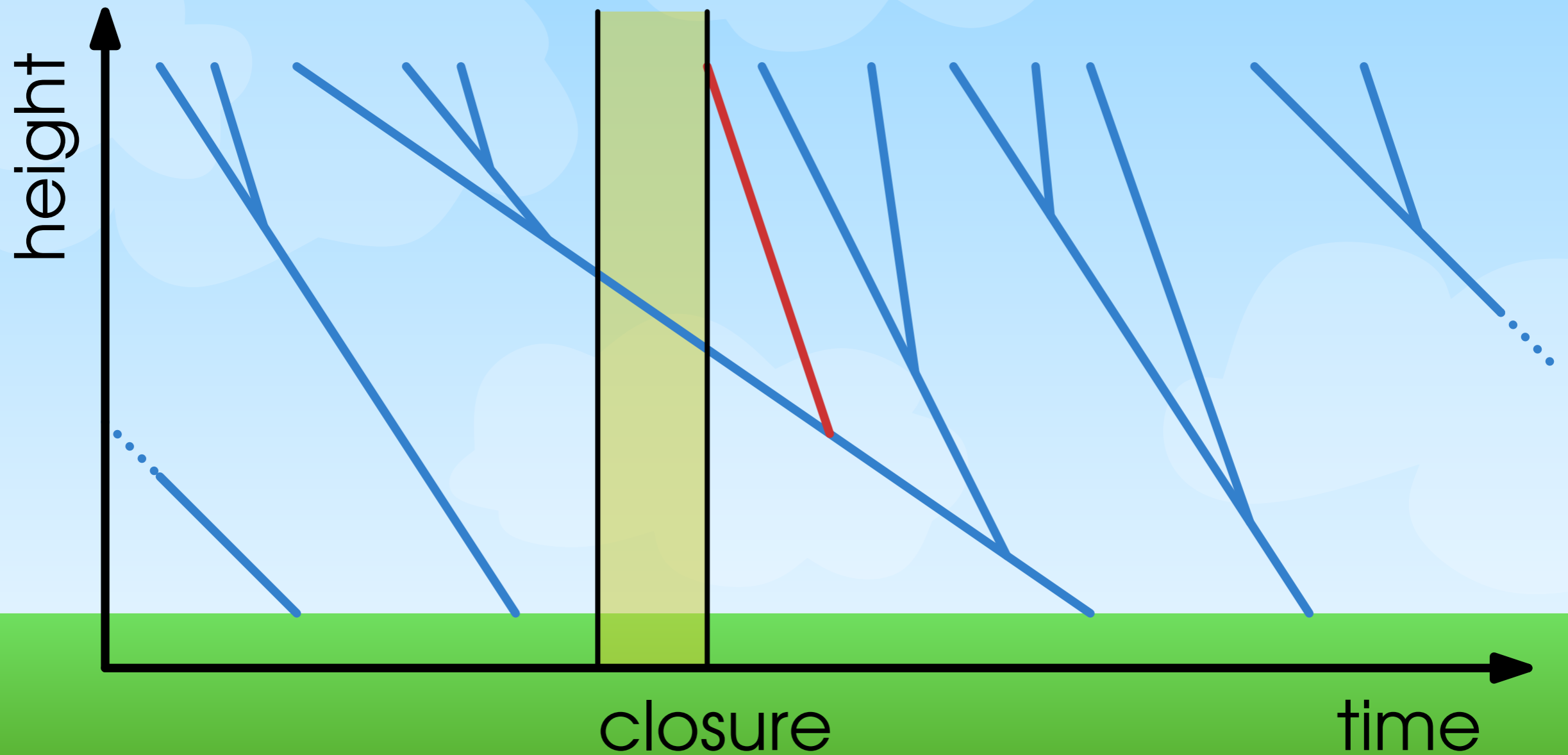
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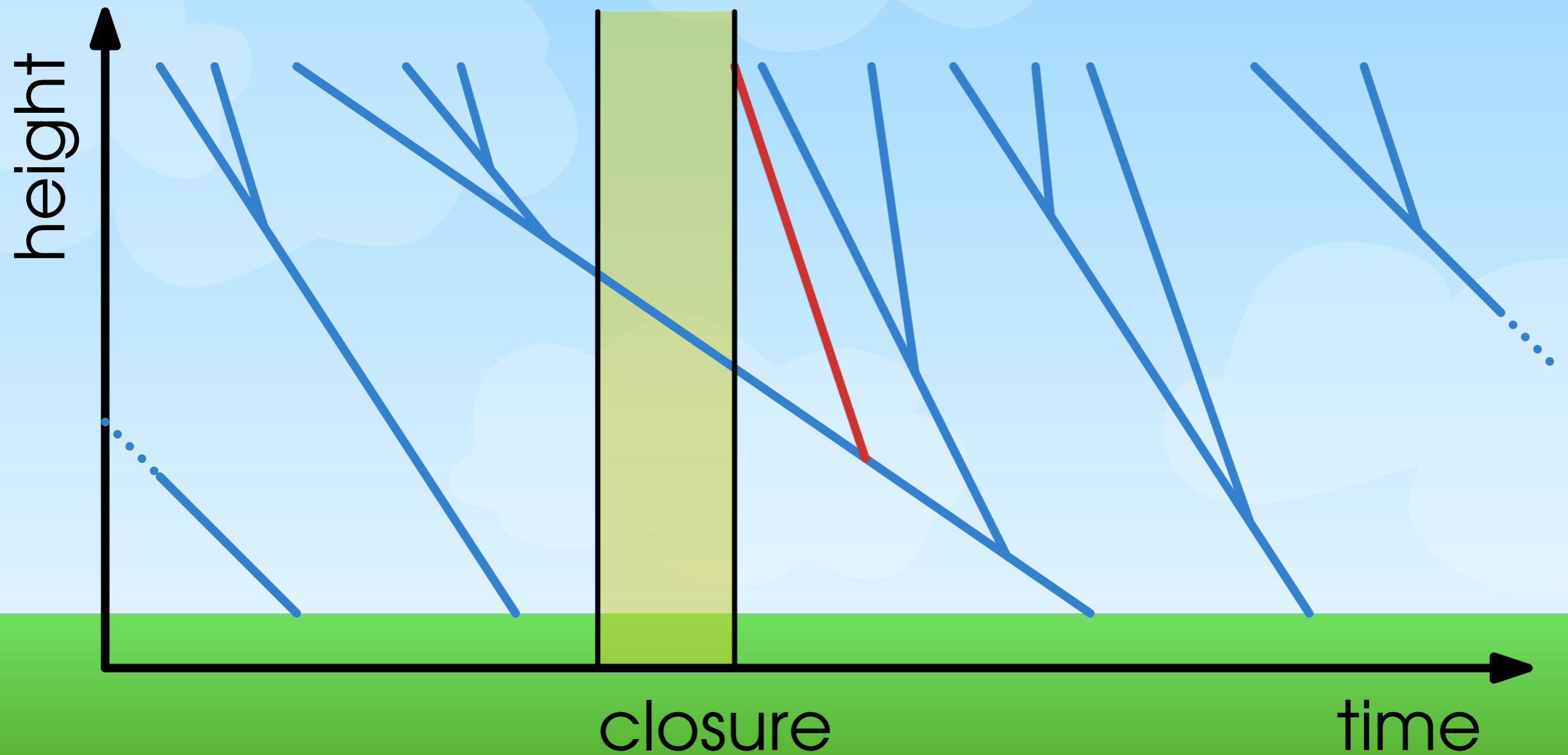
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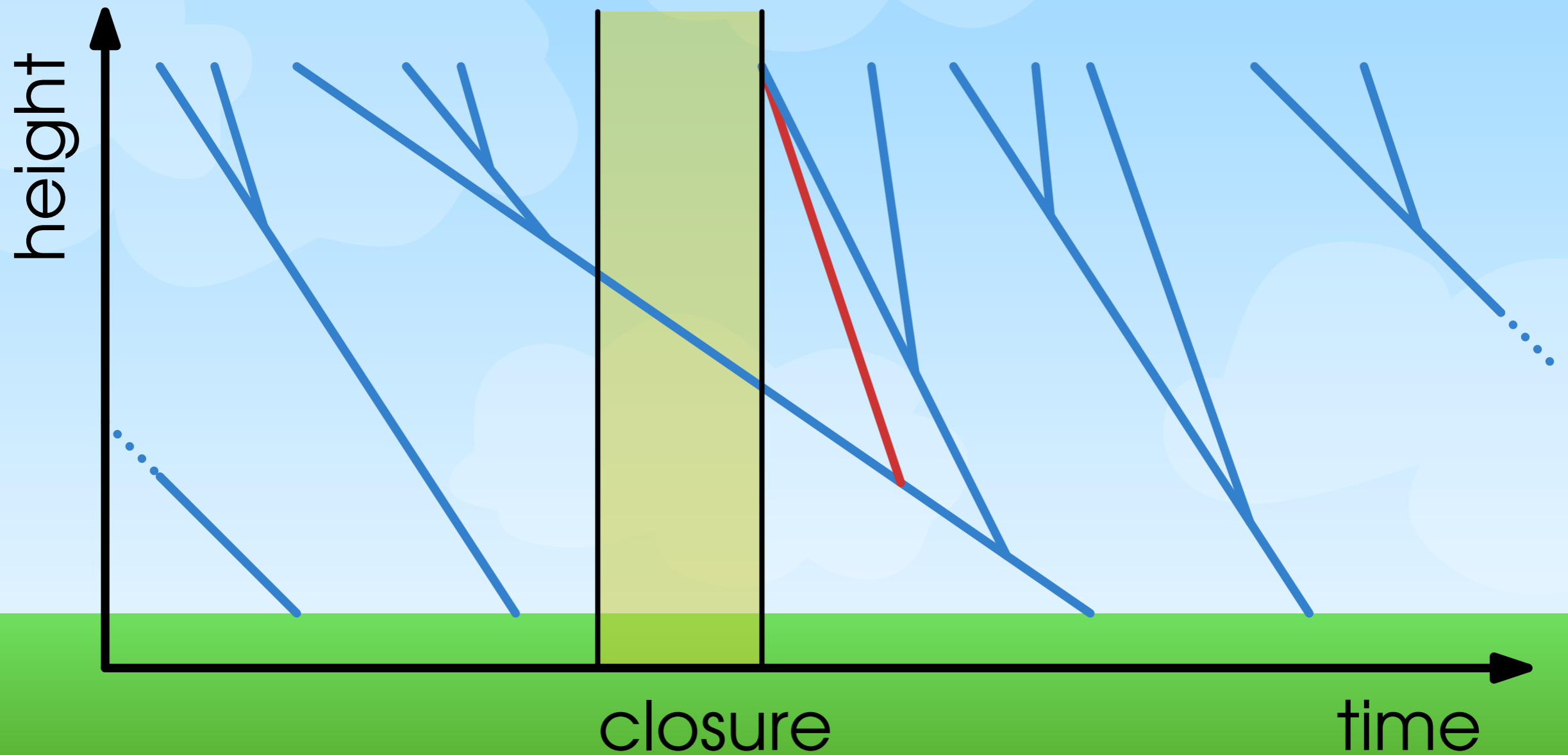
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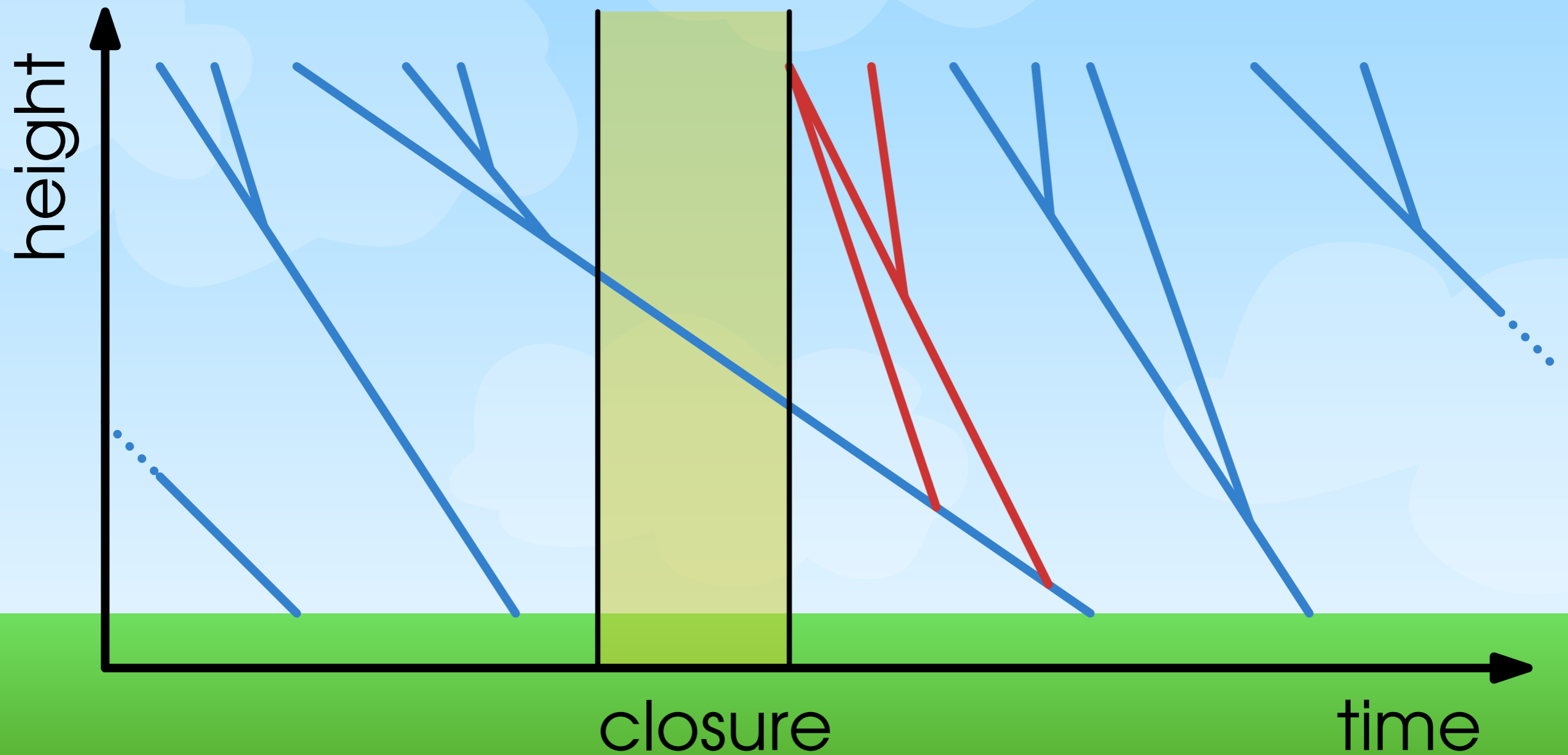
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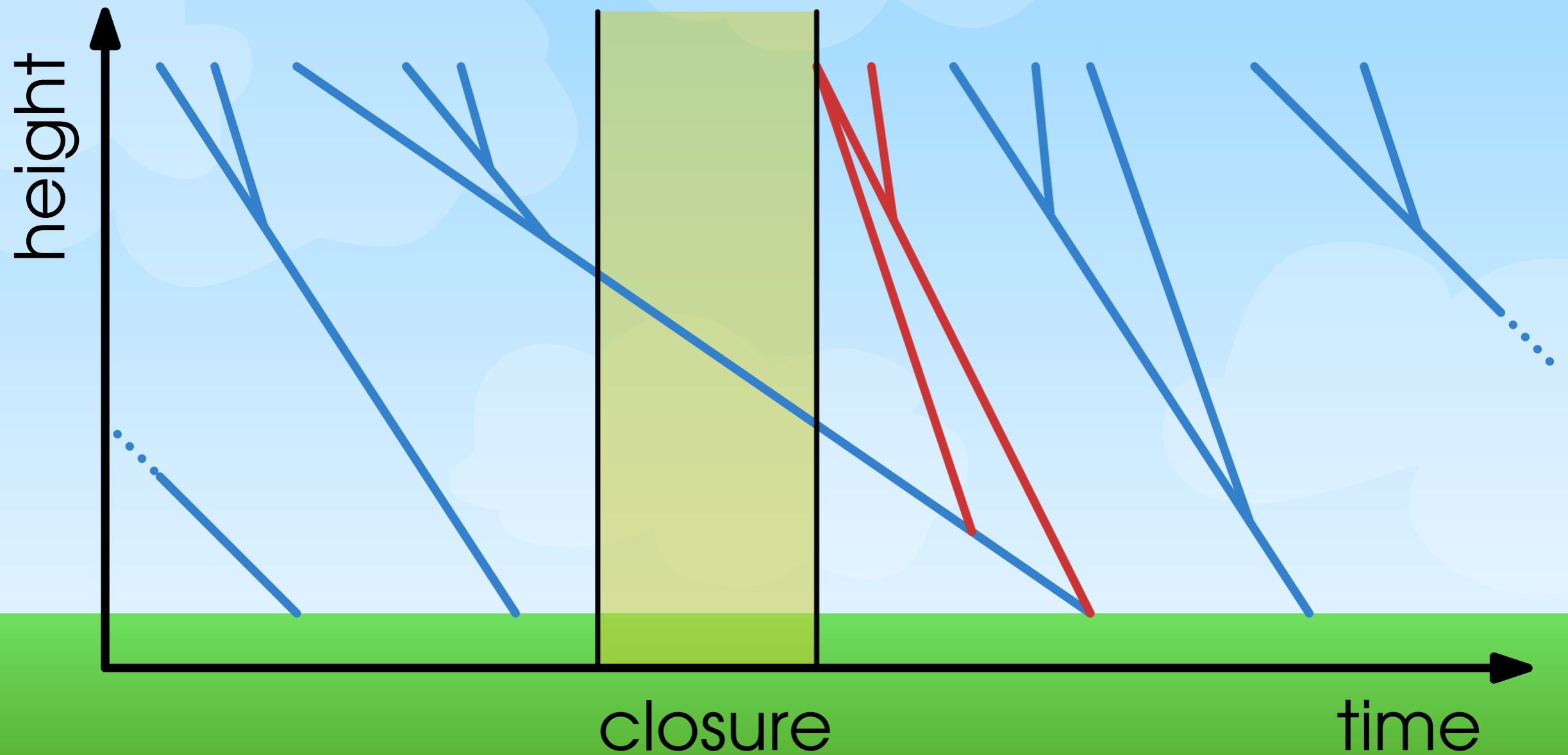
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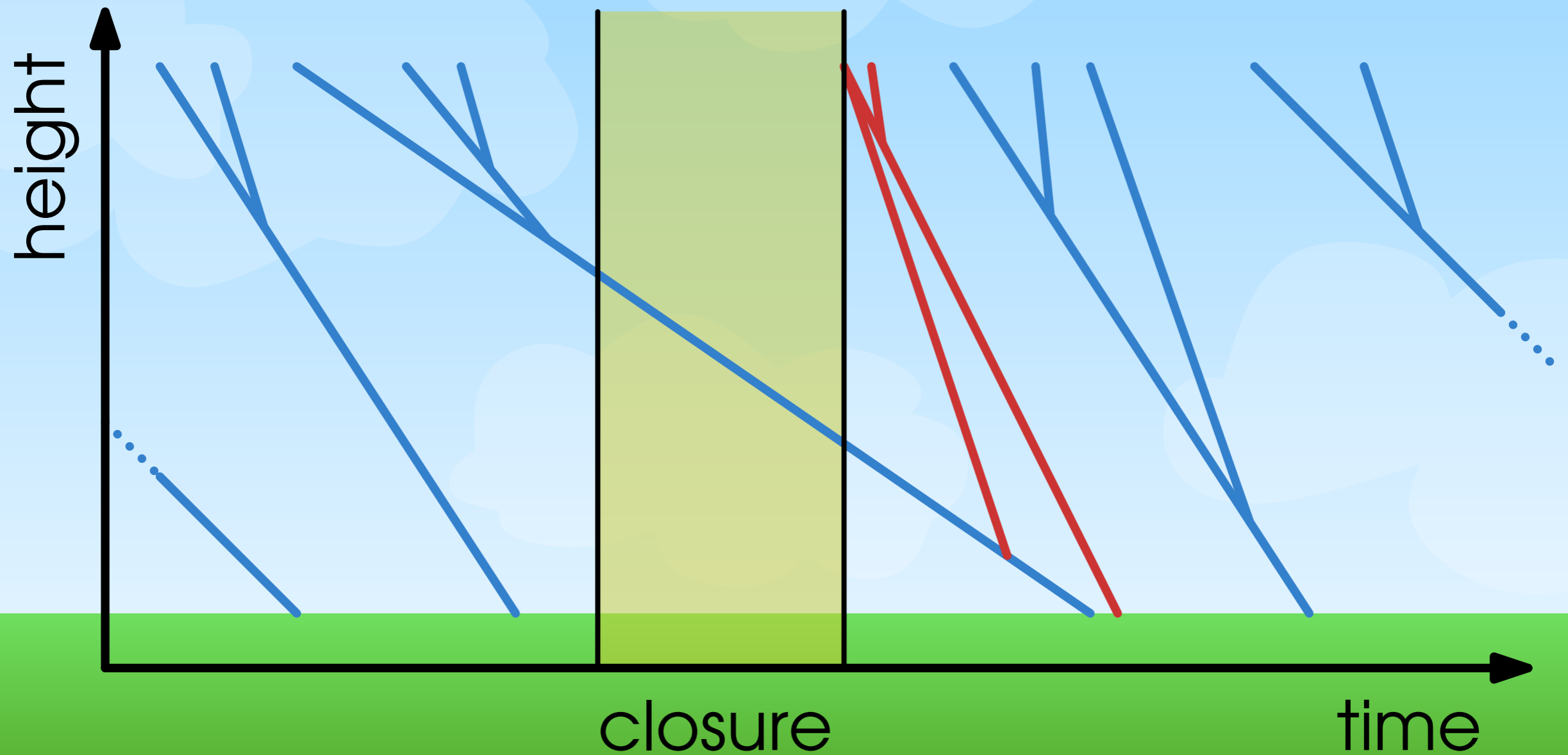
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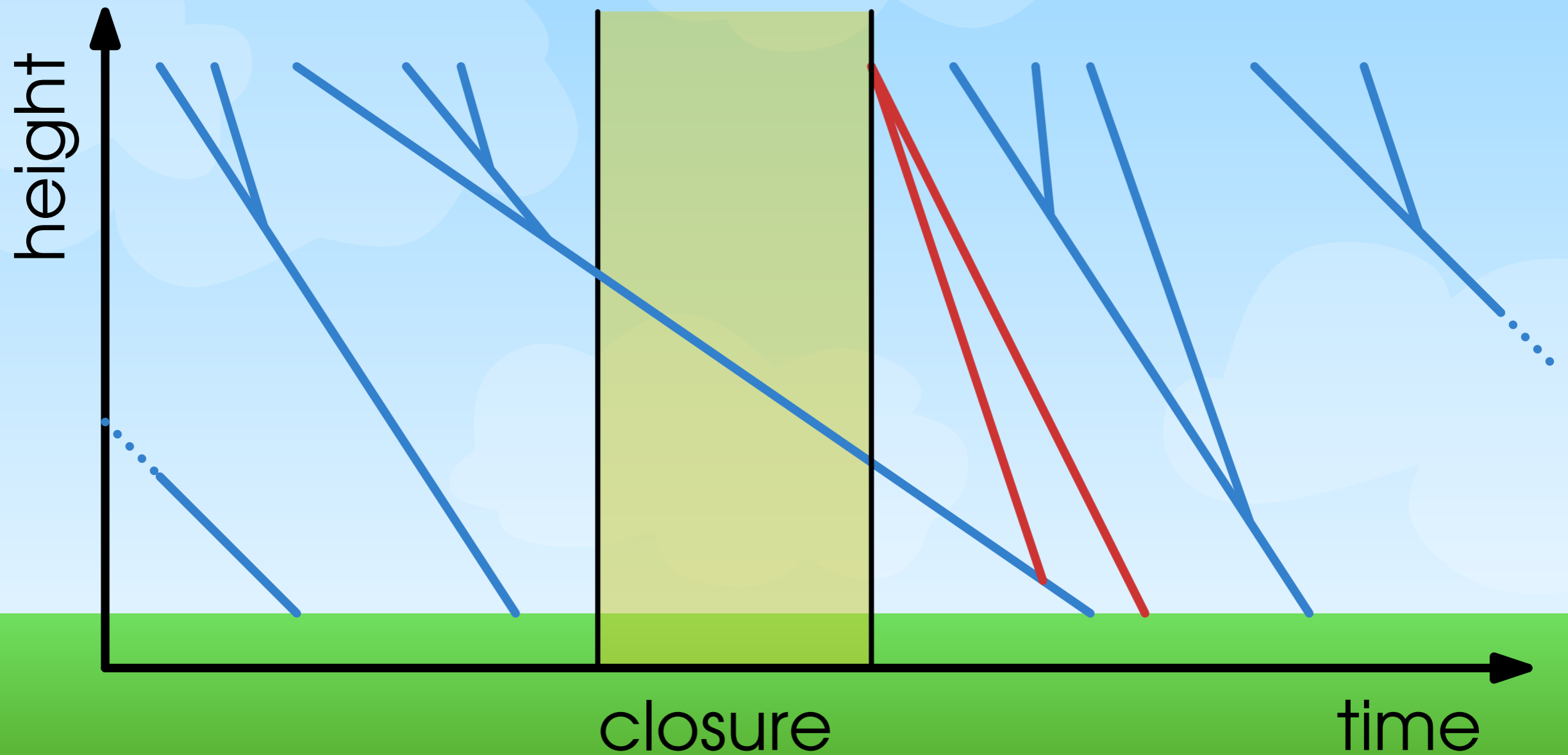
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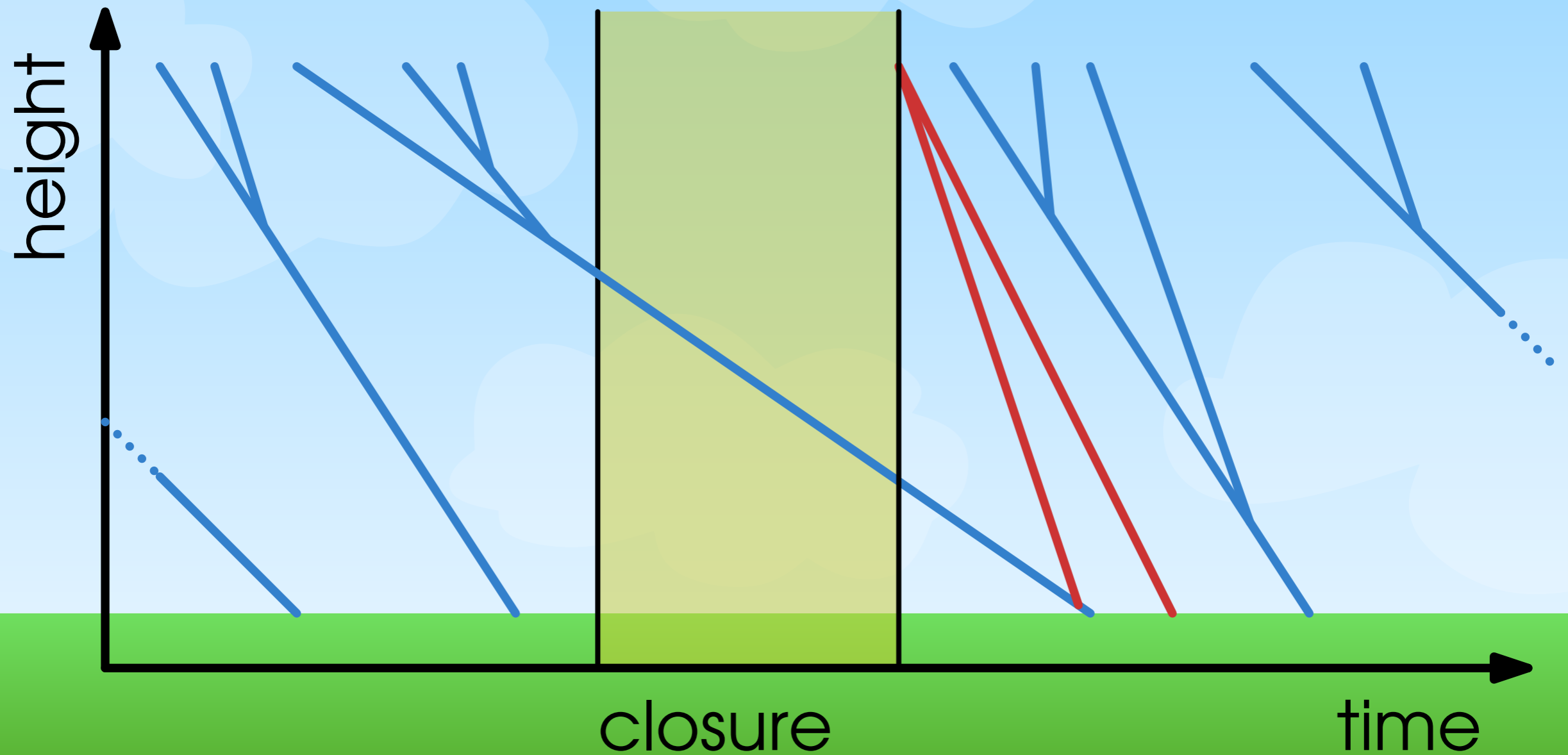
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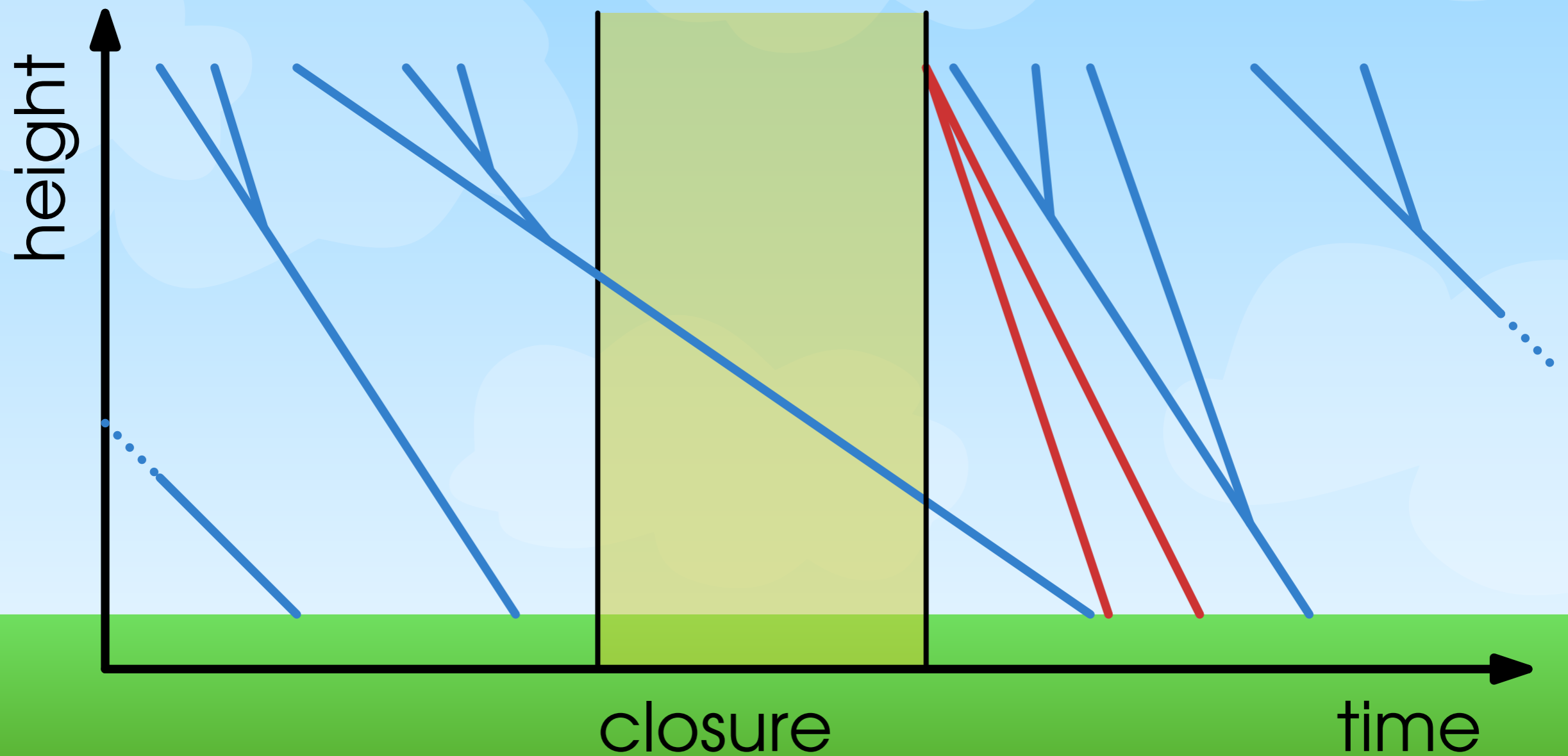
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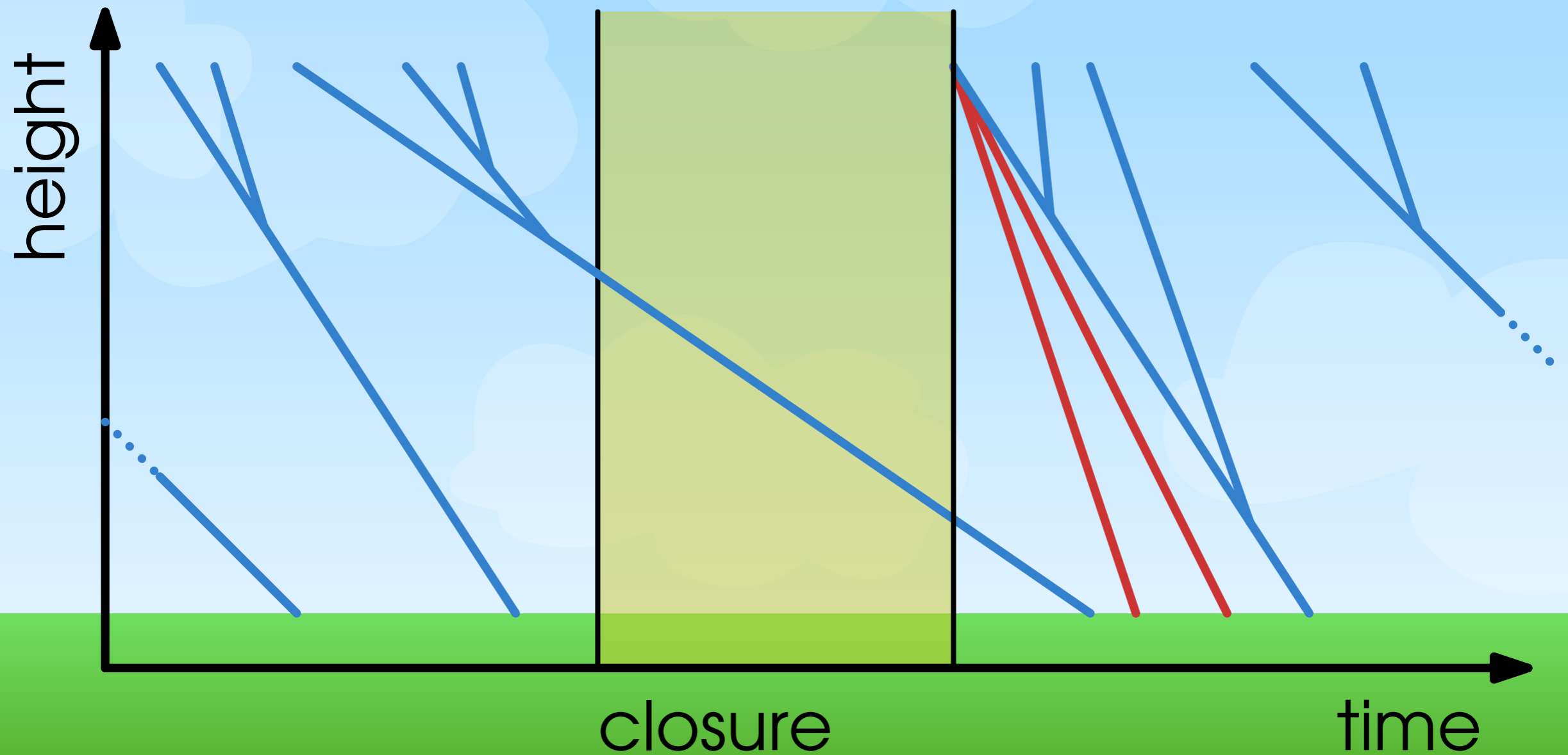
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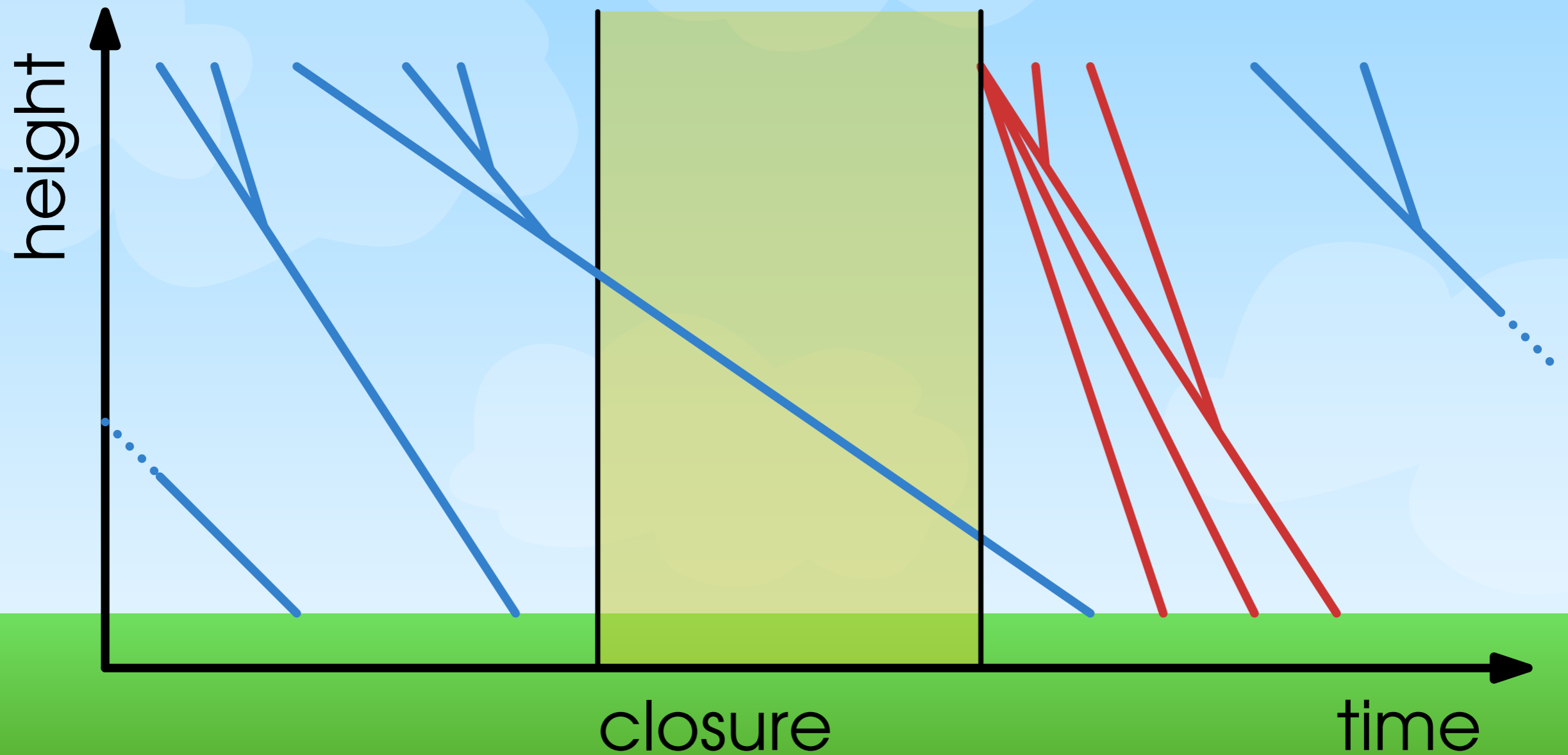
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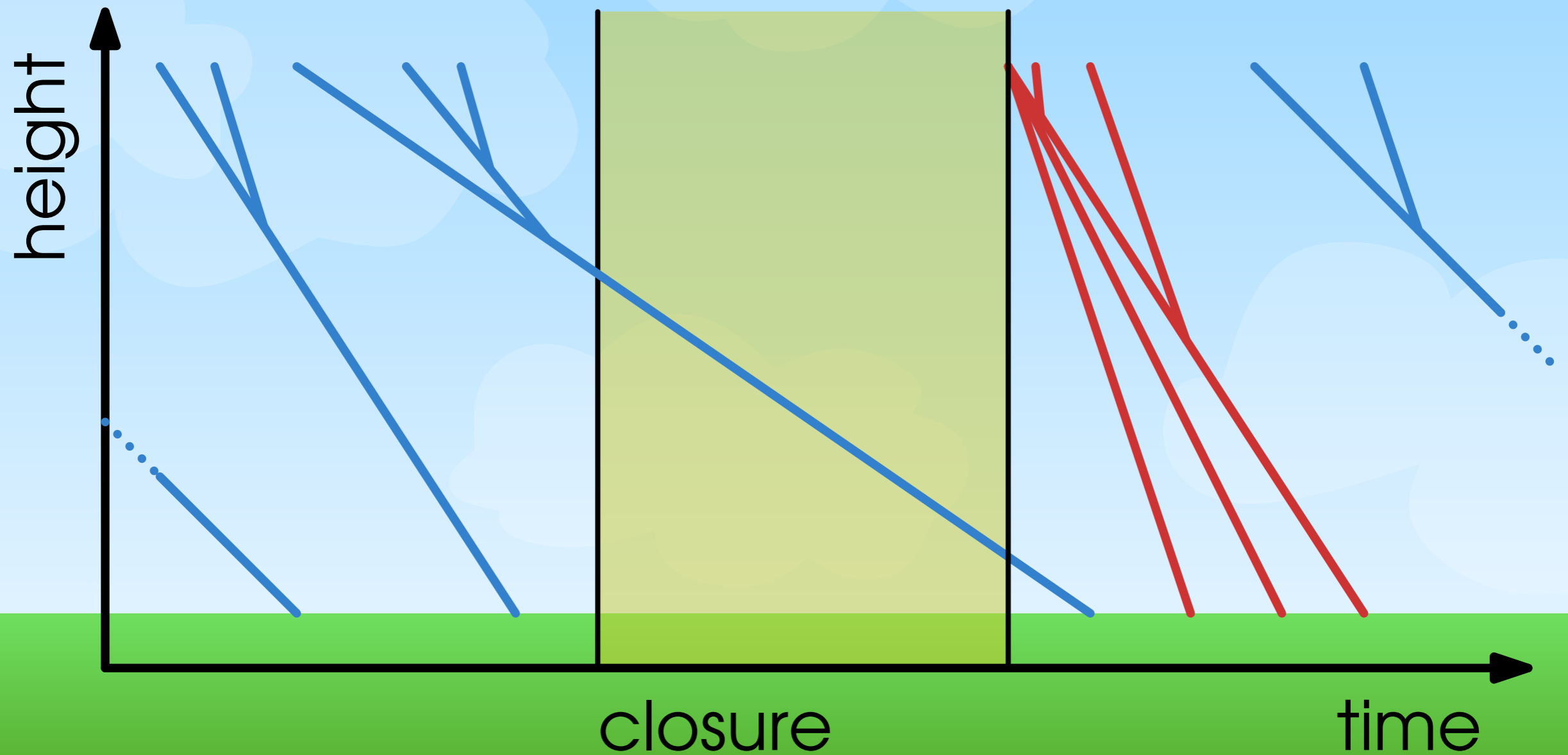
THE MODEL



THE MODEL



THE MODEL

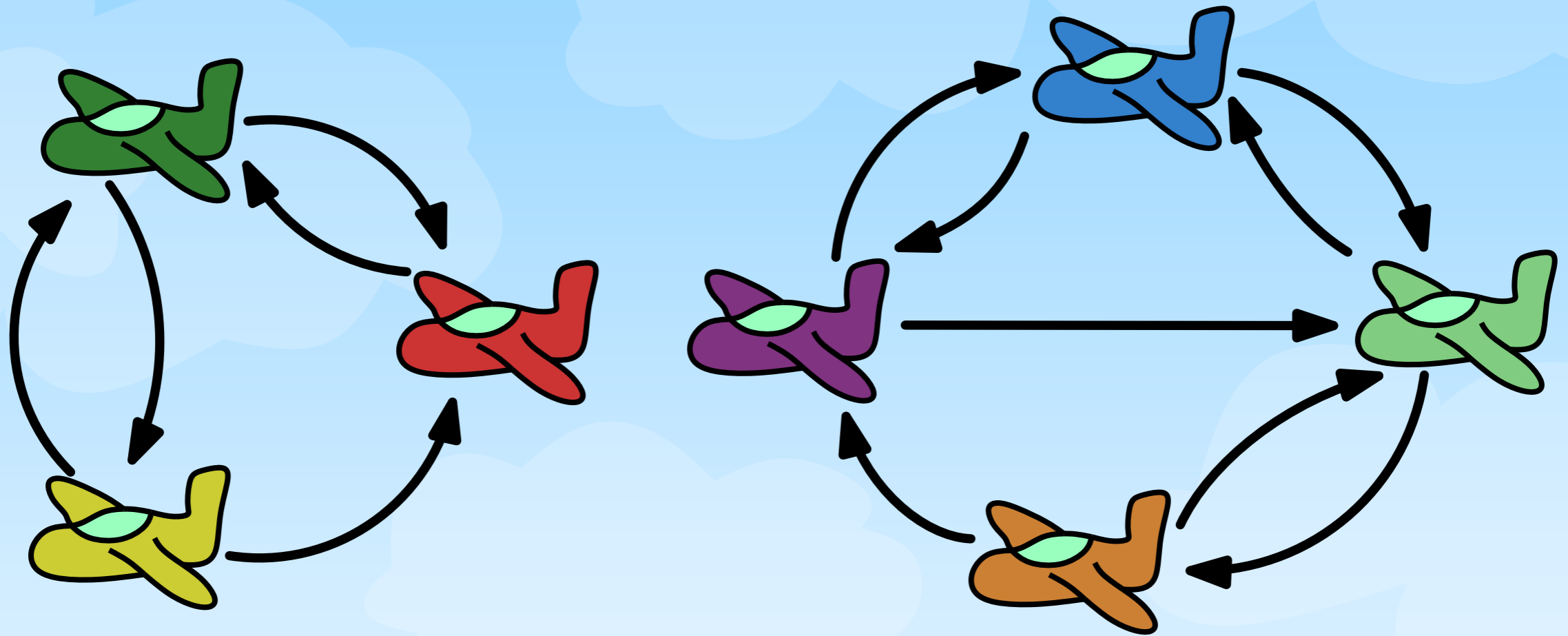


THE QUESTION

“How do we minimize the total delay caused by the closure?”

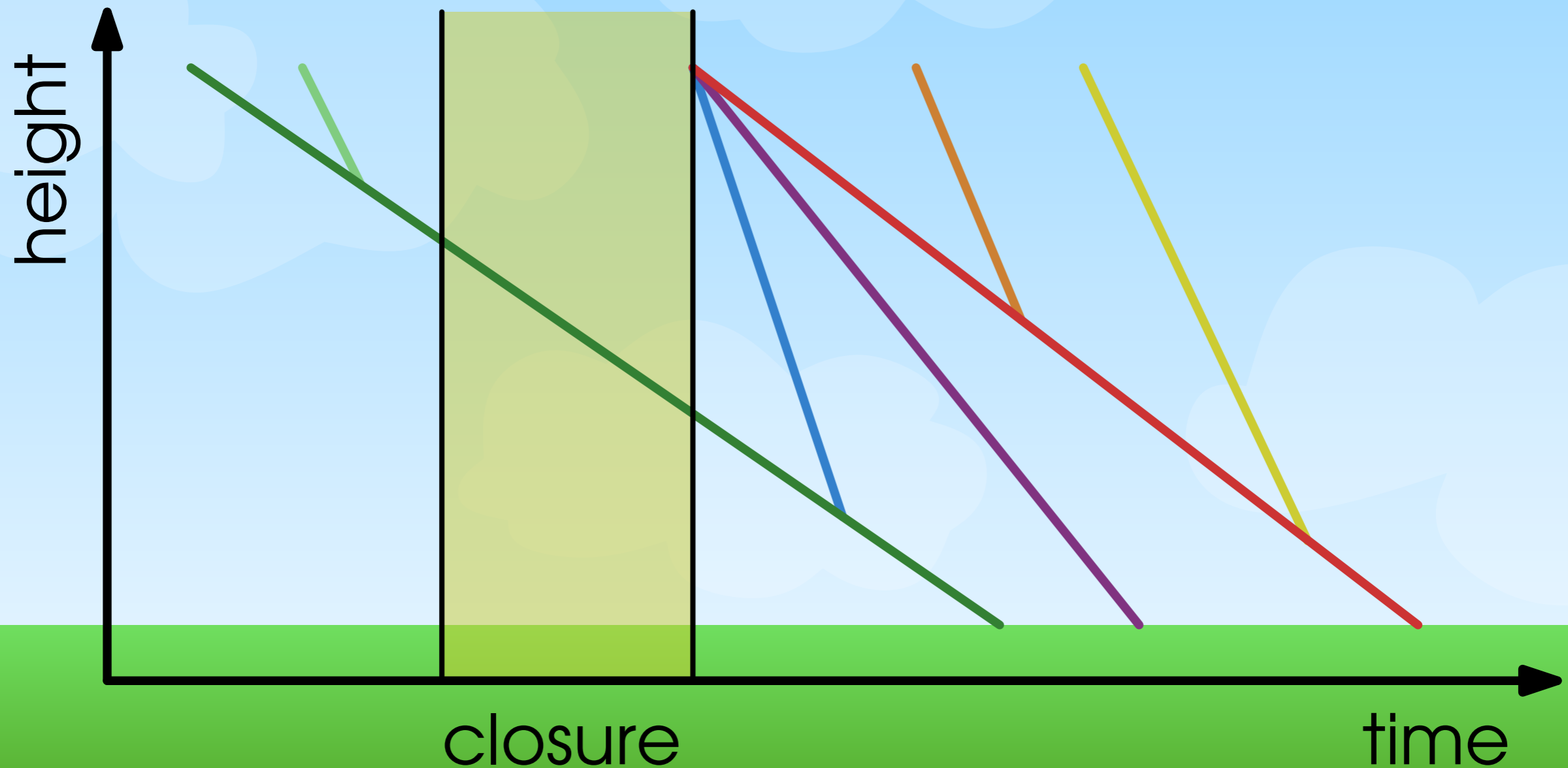
THE MASTERPLAN

THE MASTERPLAN



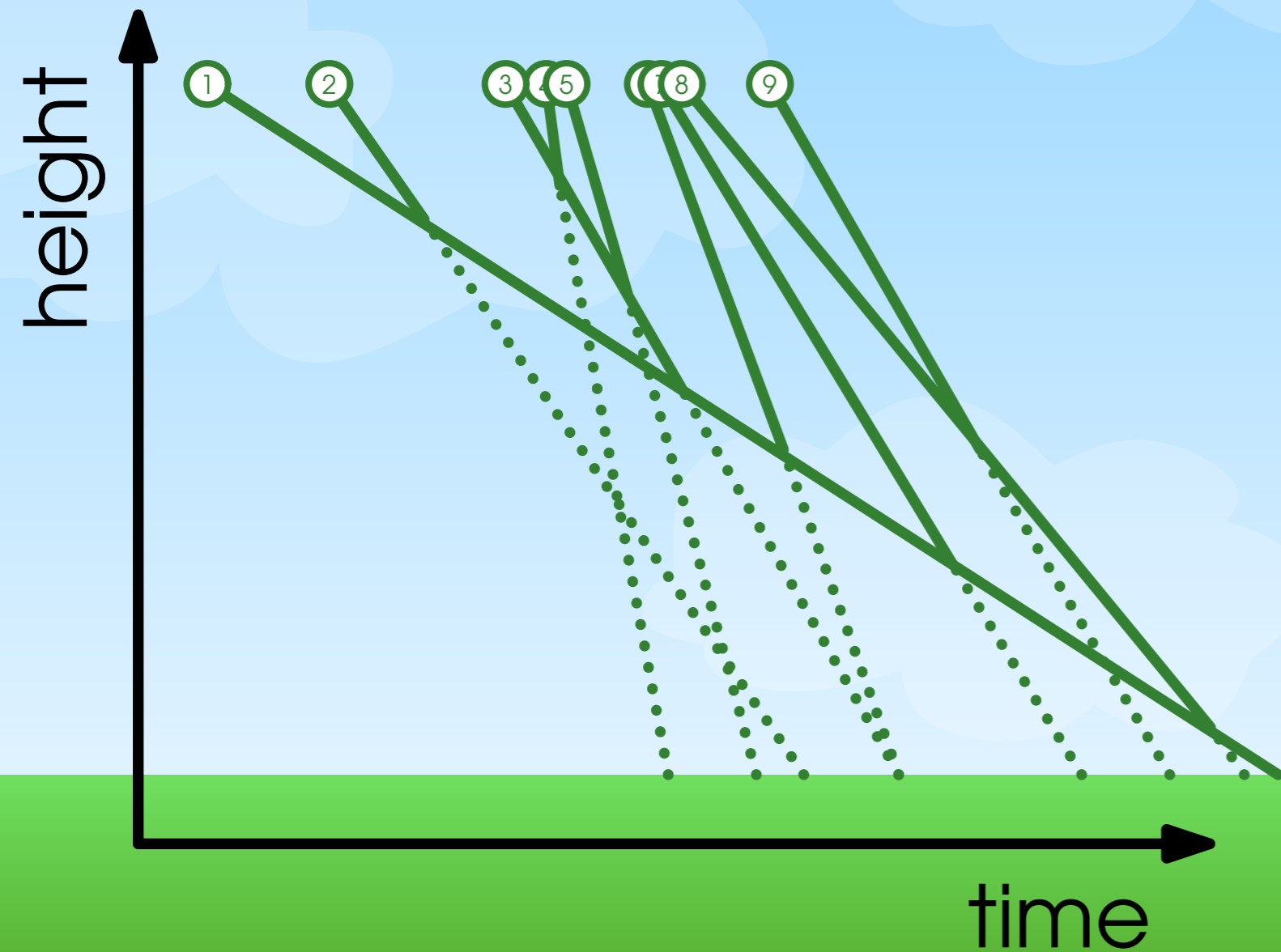
THE COLOUR SCHEME

THE COLOUR SCHEME

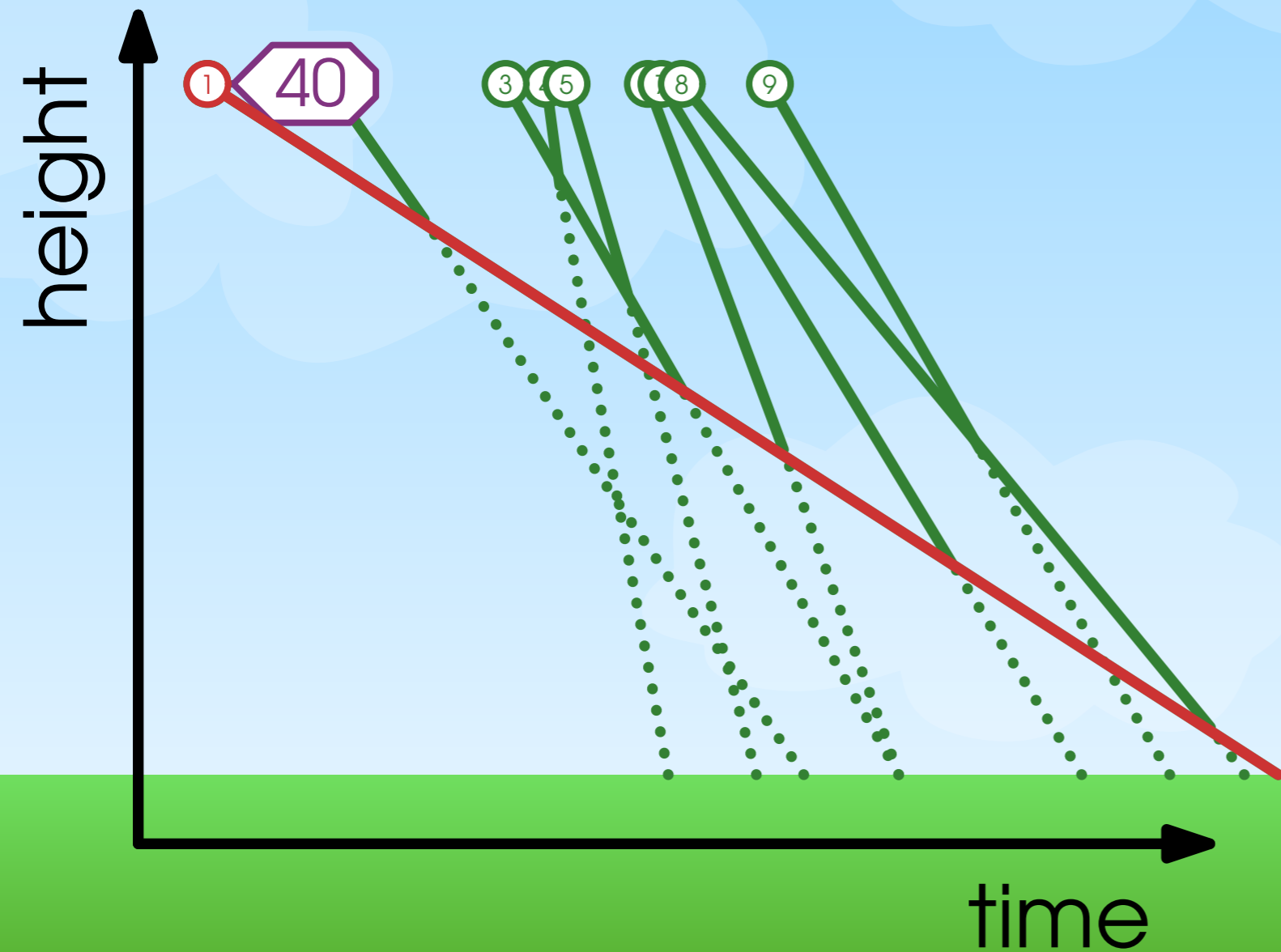


THE PLATOON TREE

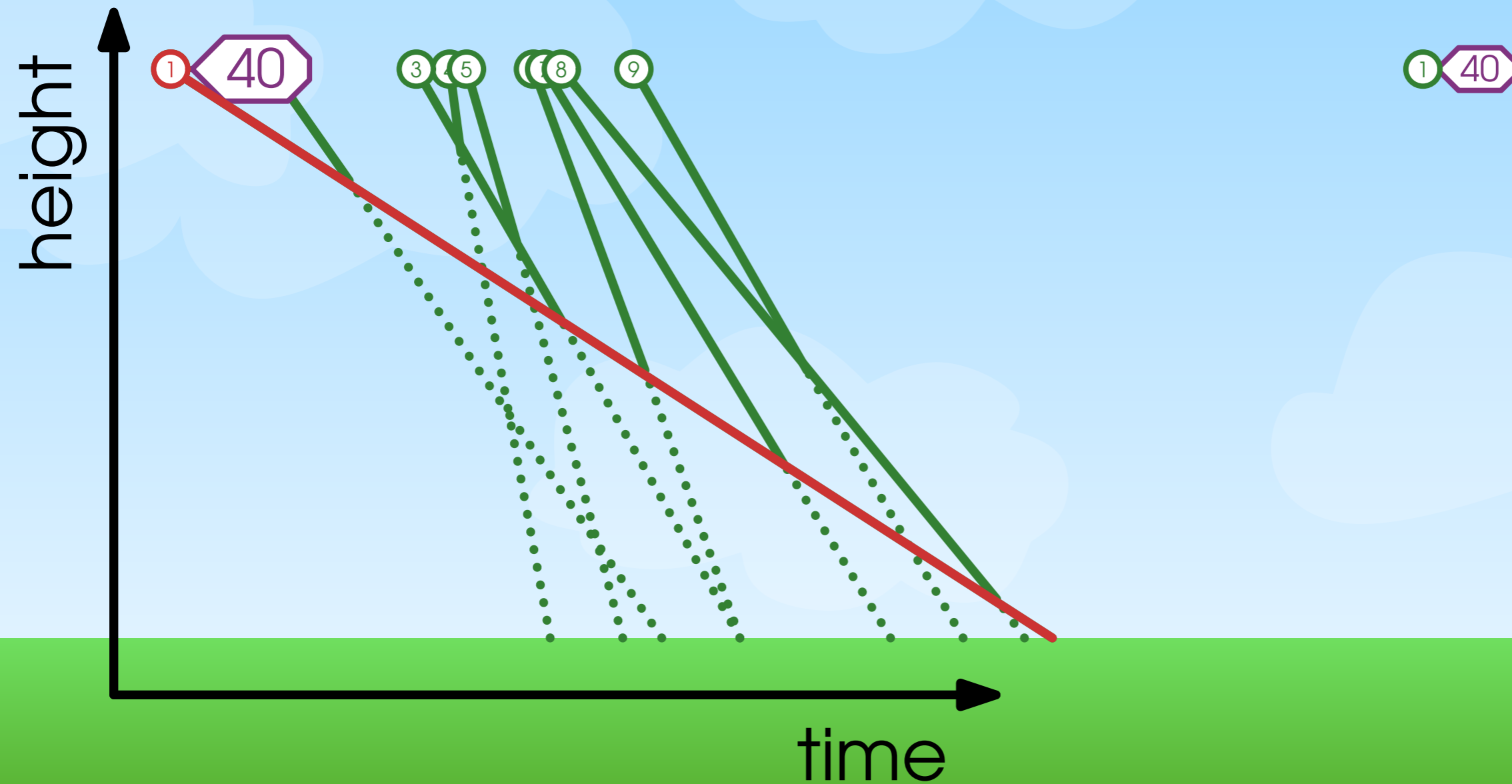
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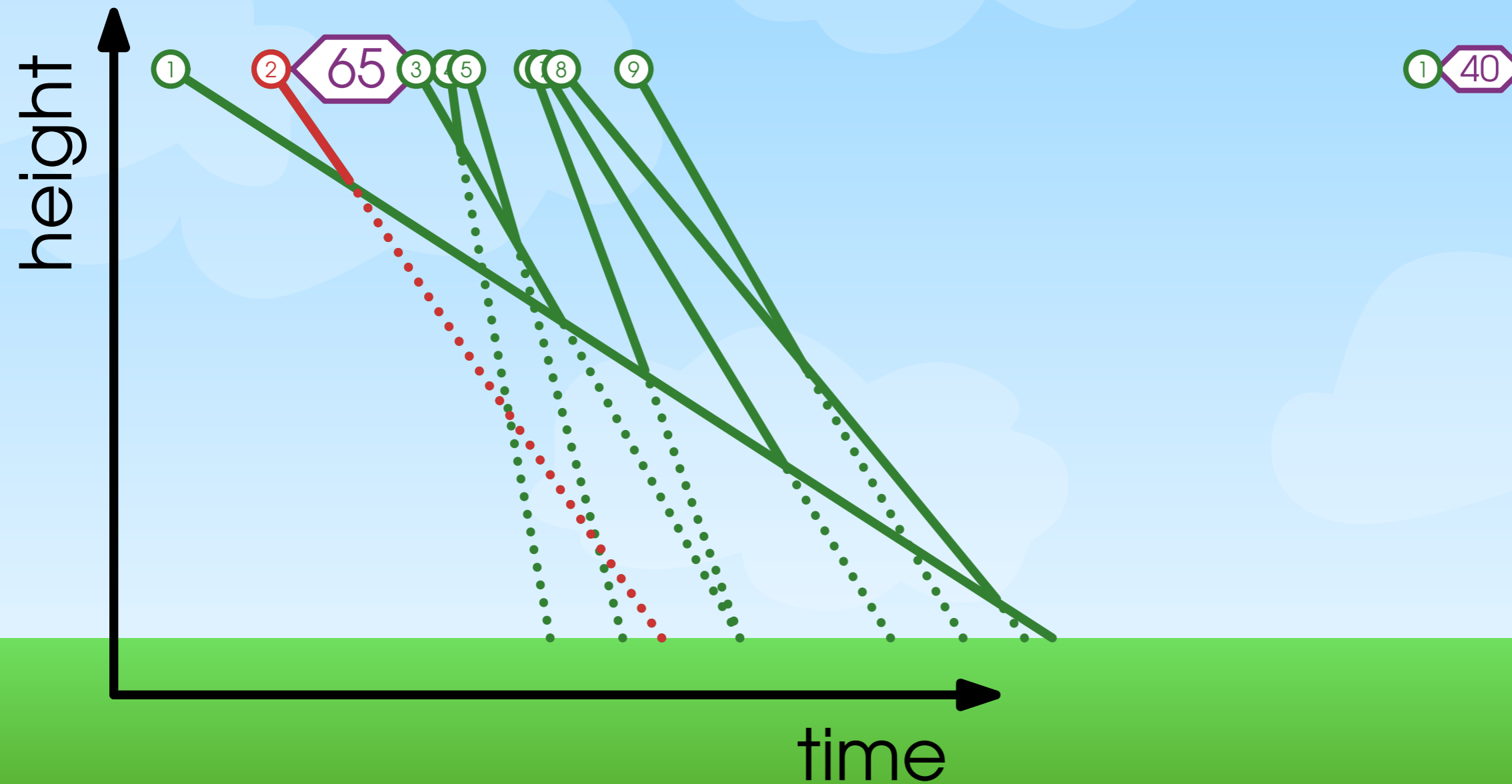
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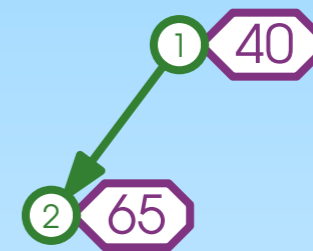
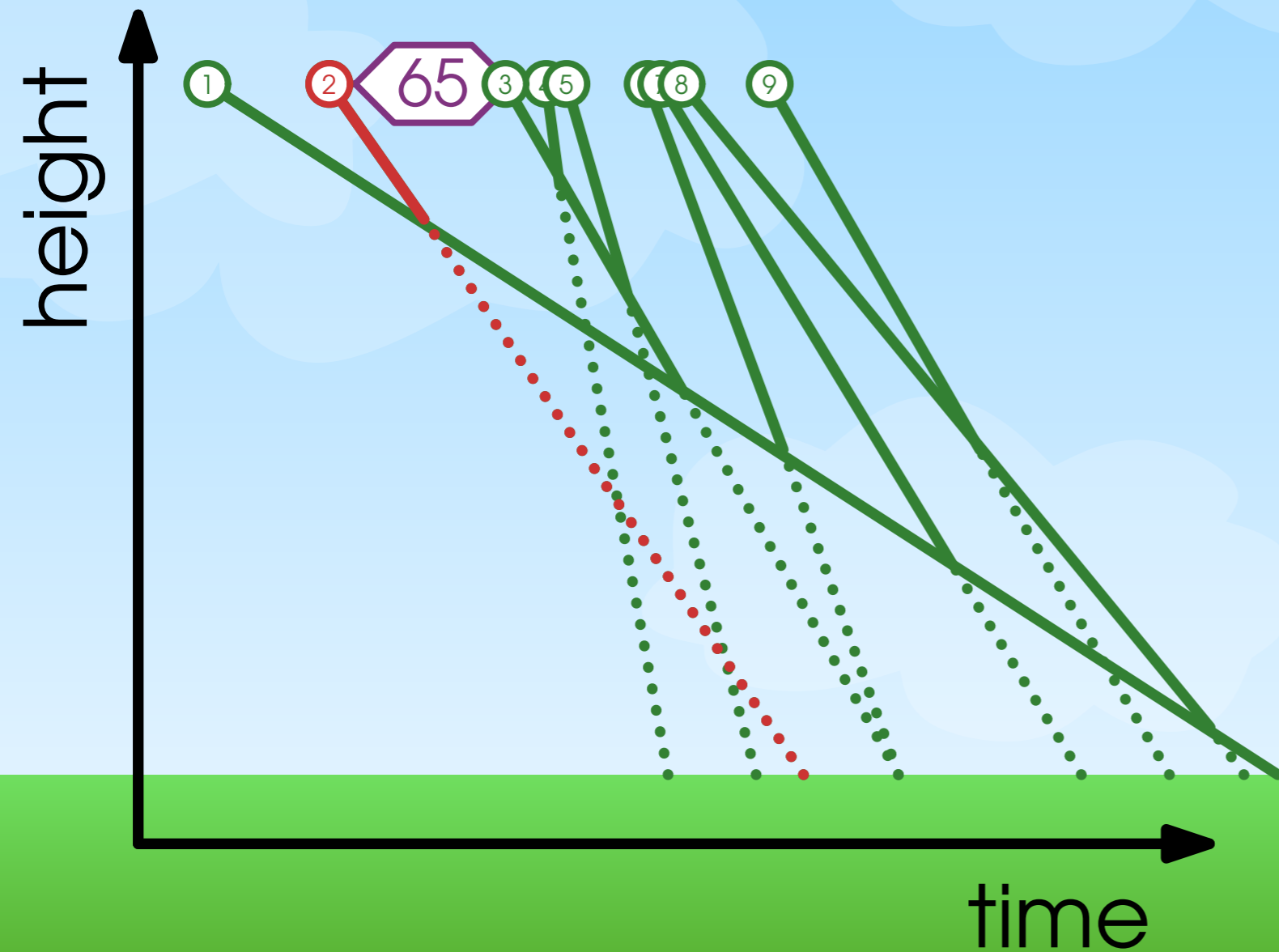
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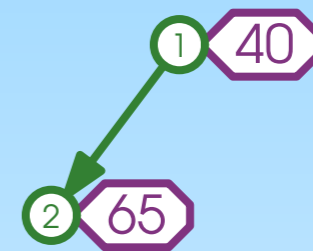
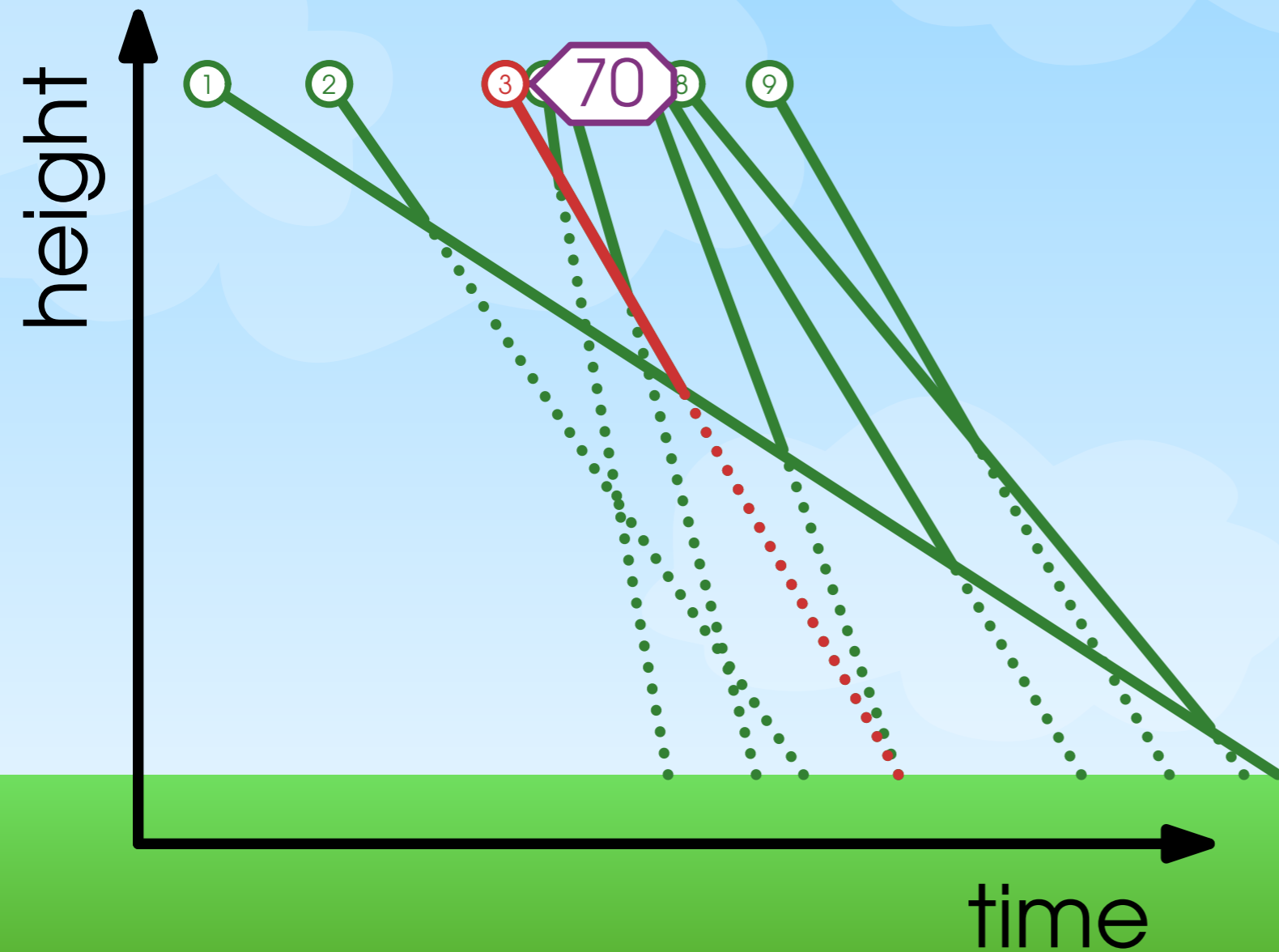
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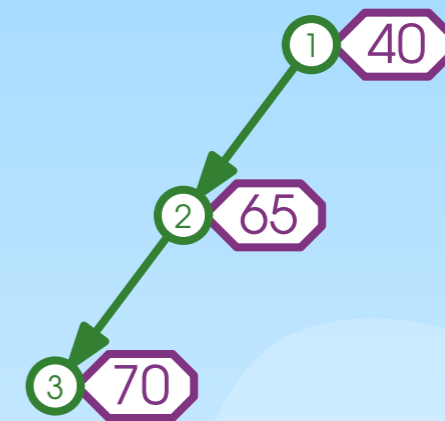
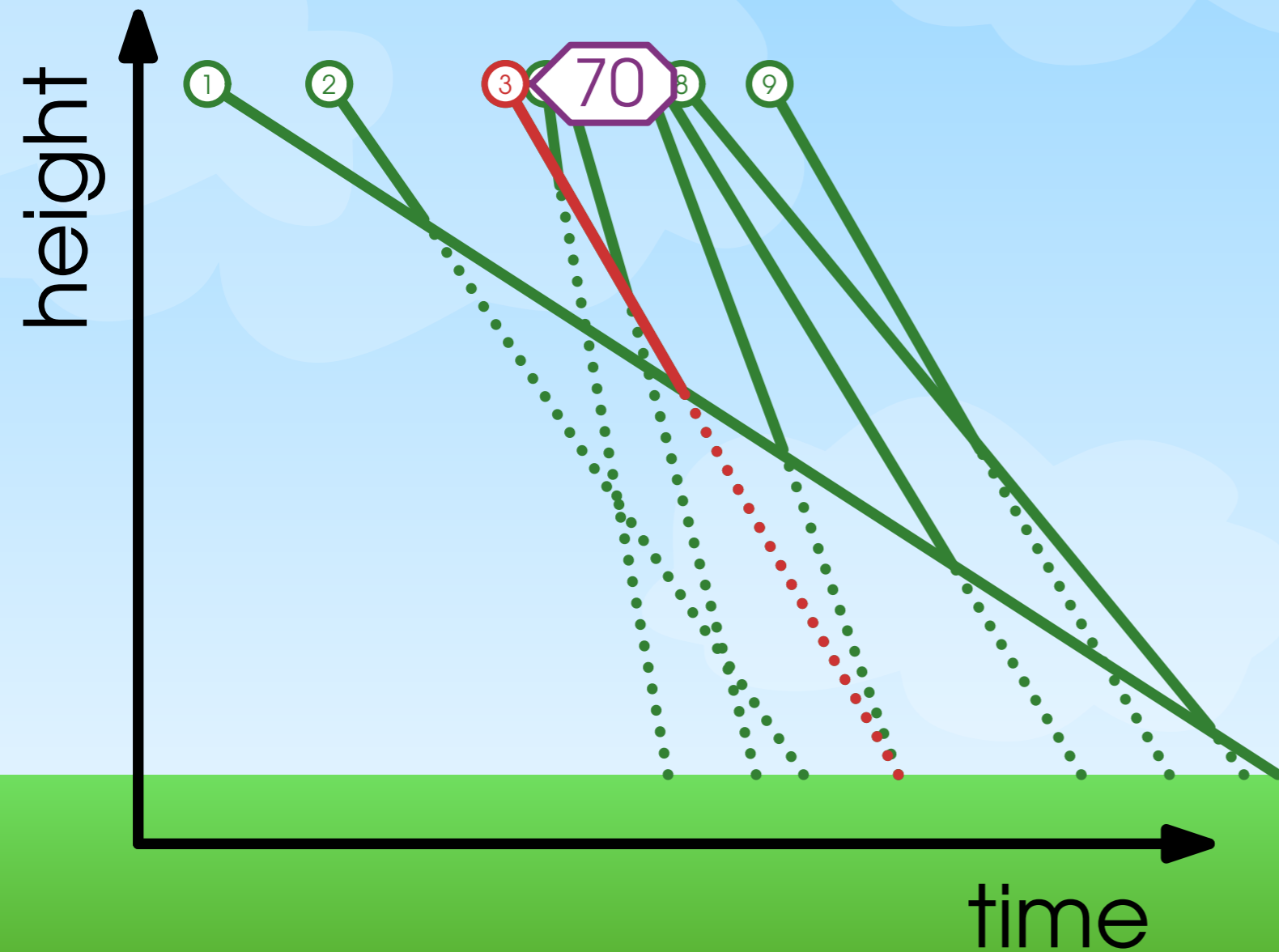
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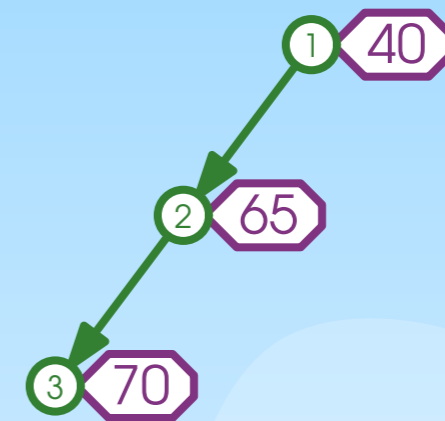
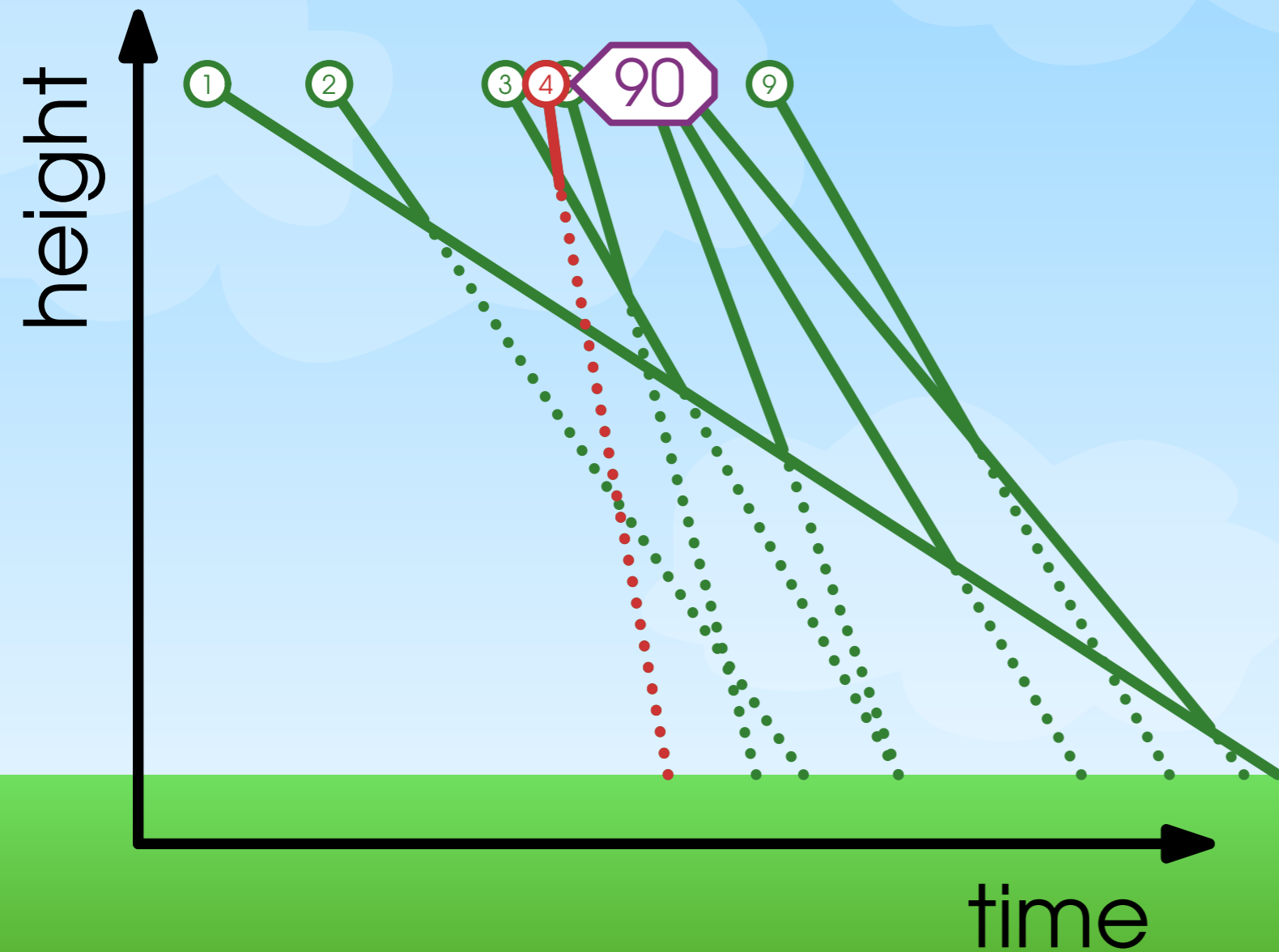
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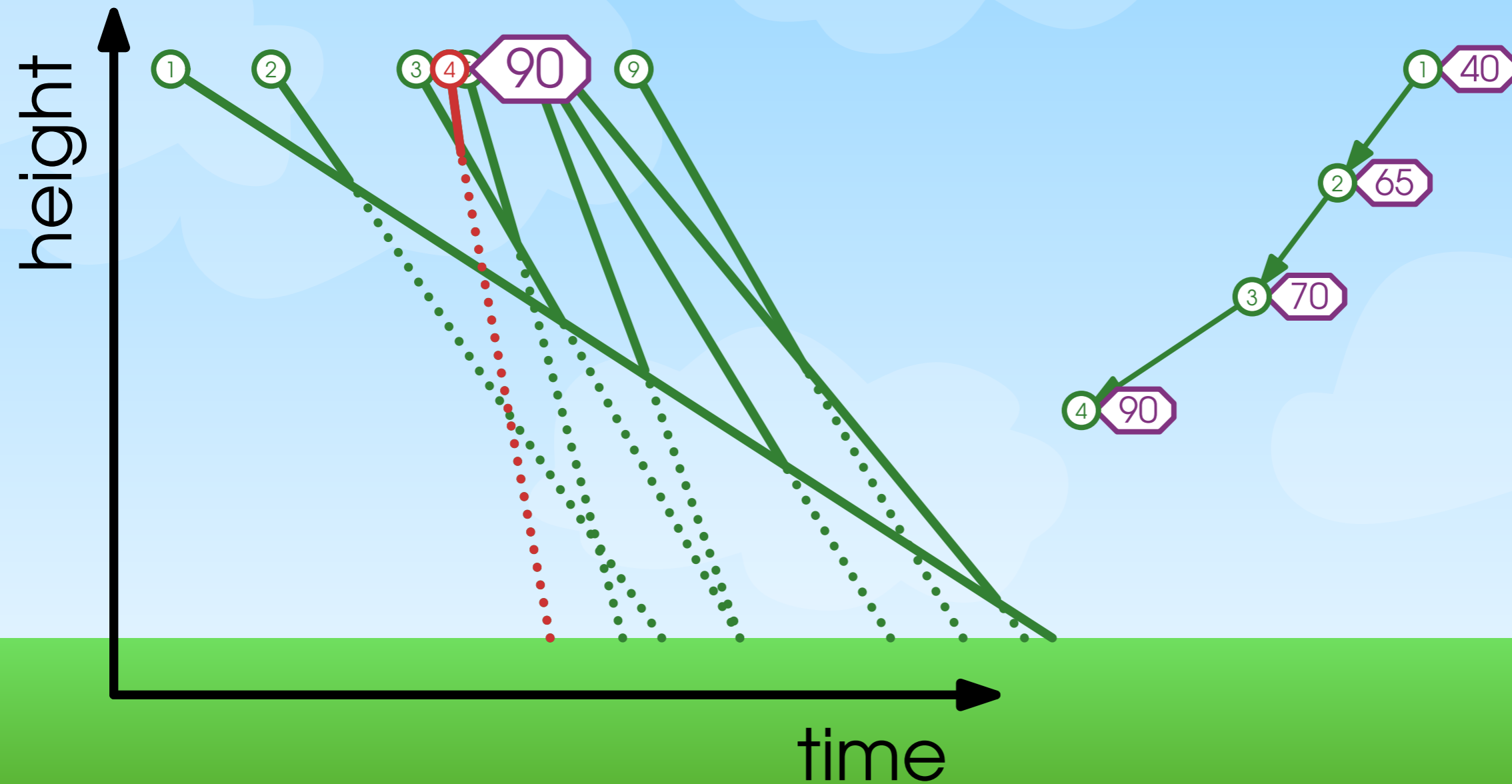
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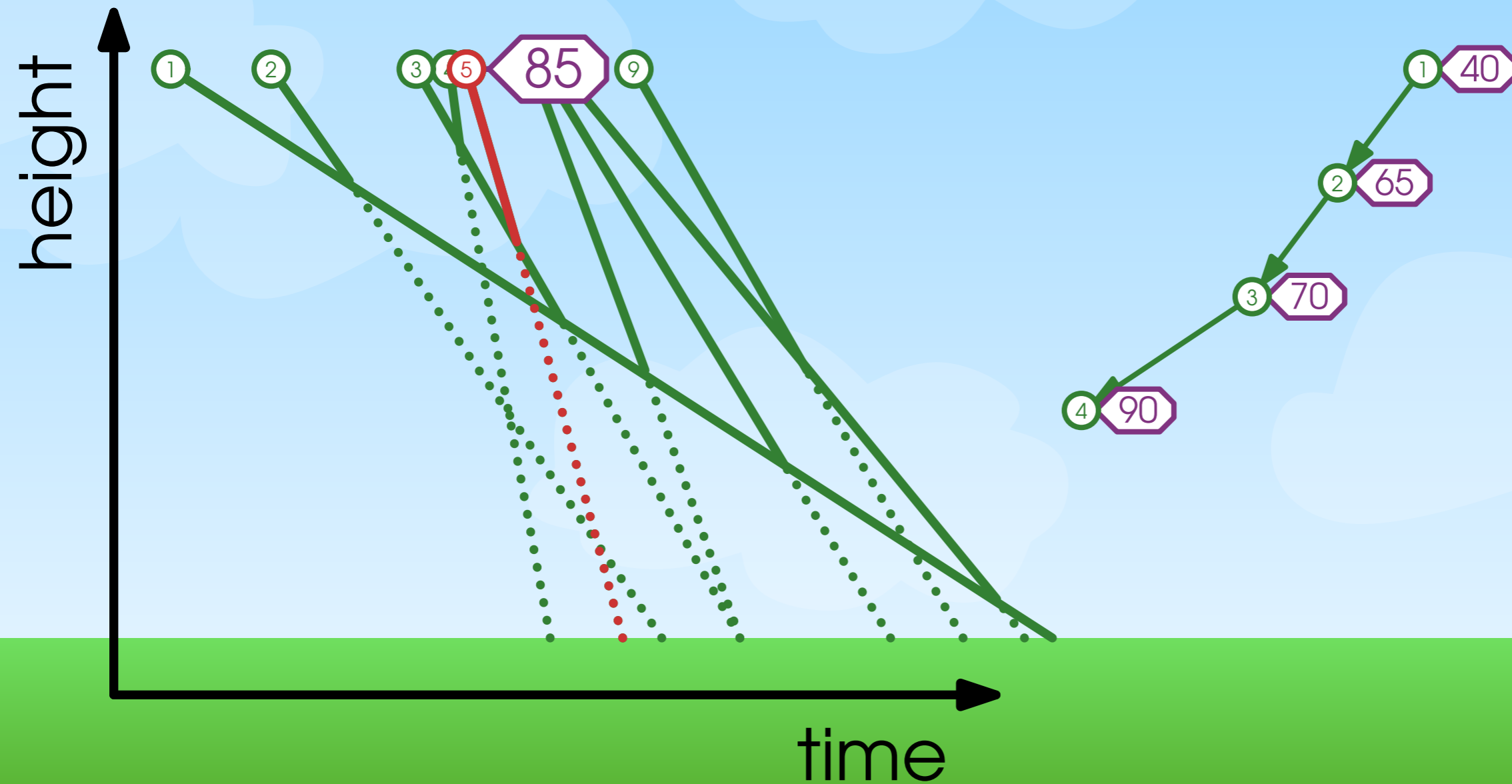
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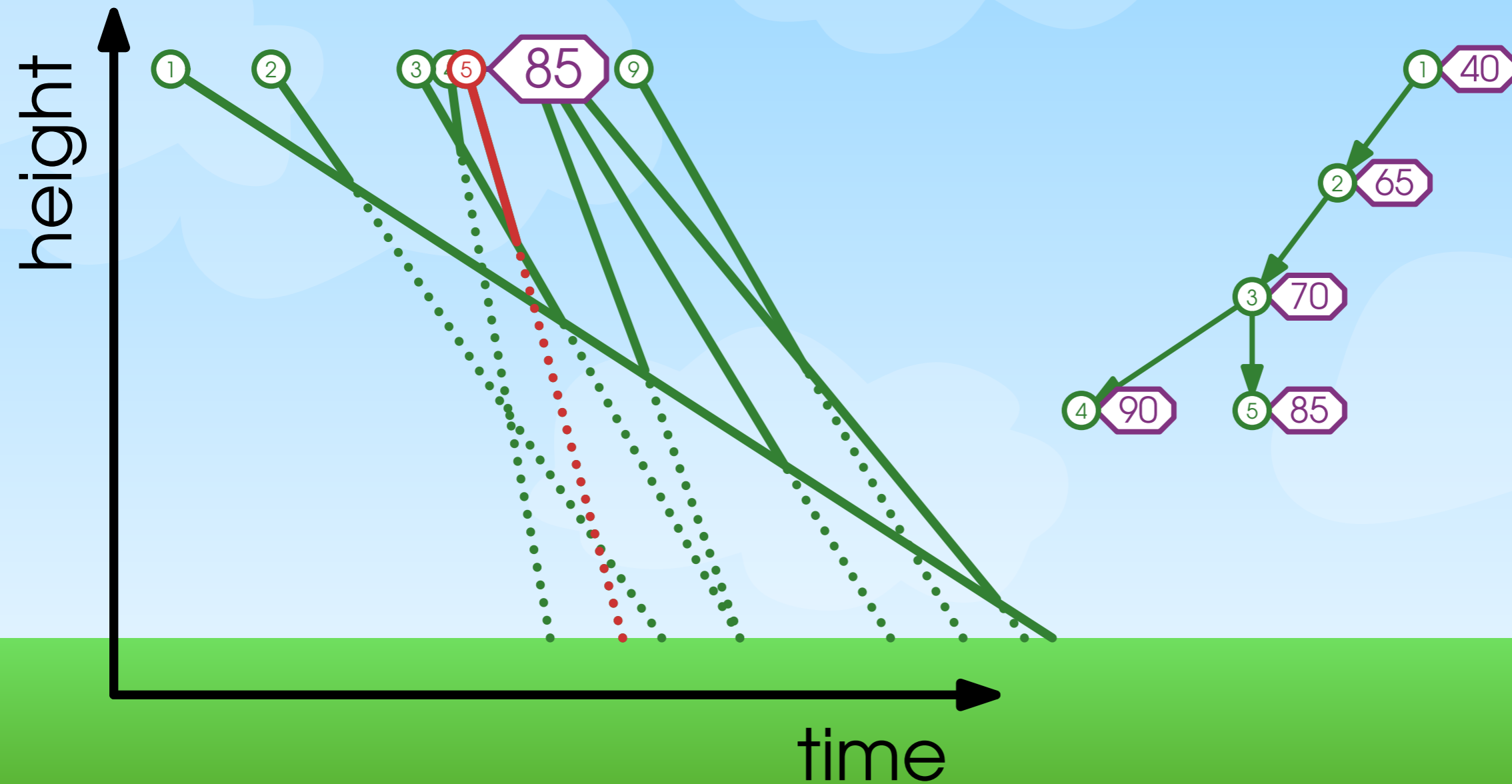
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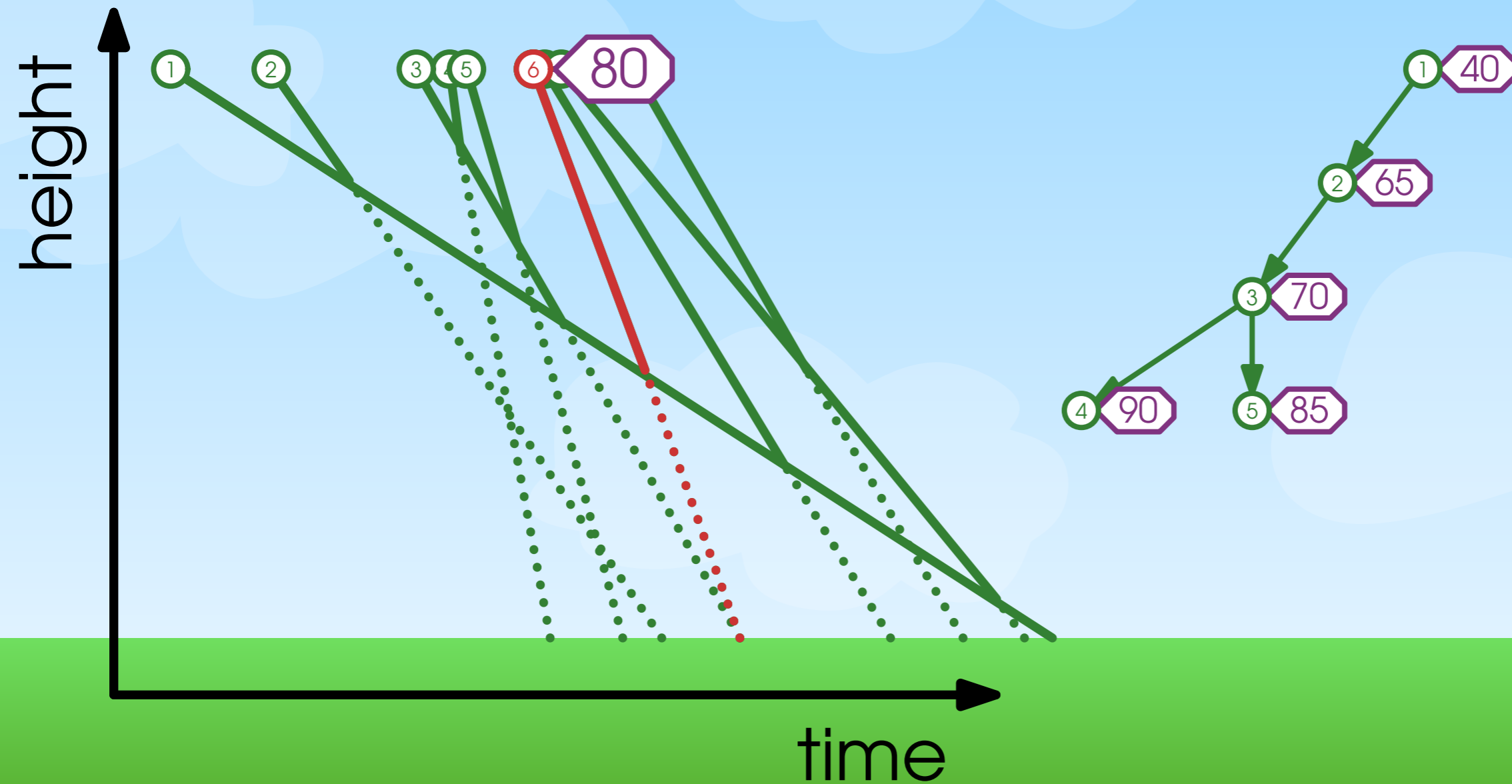
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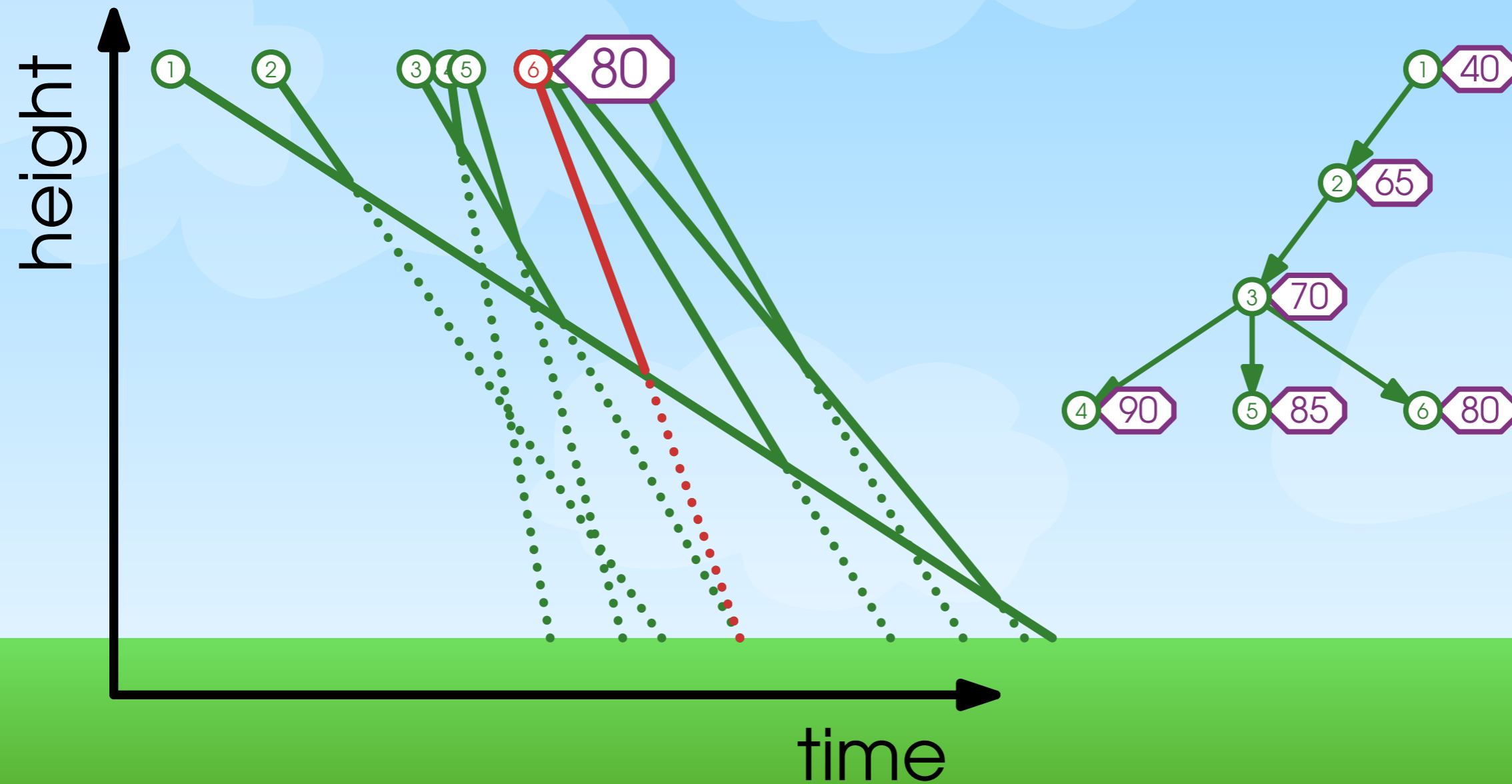
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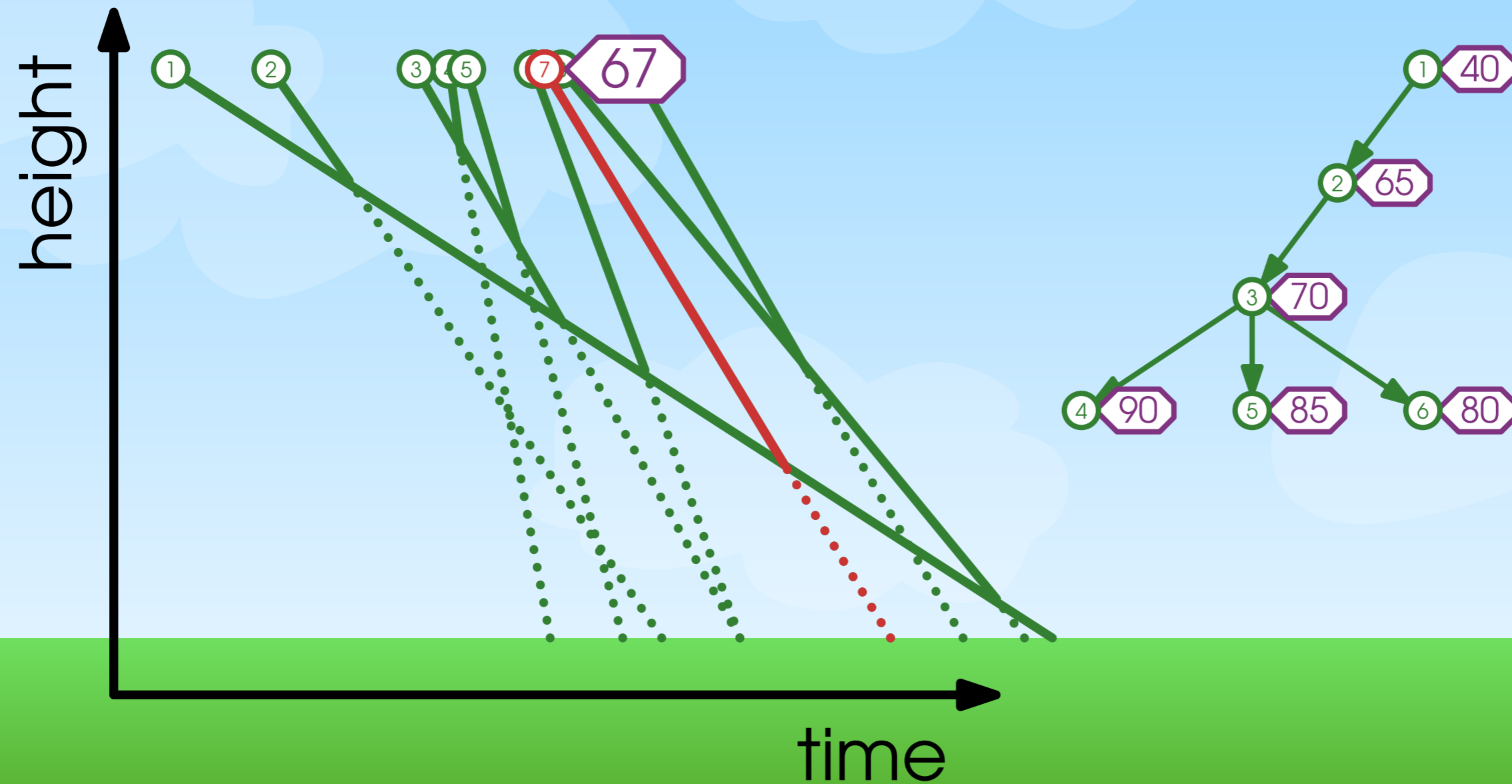
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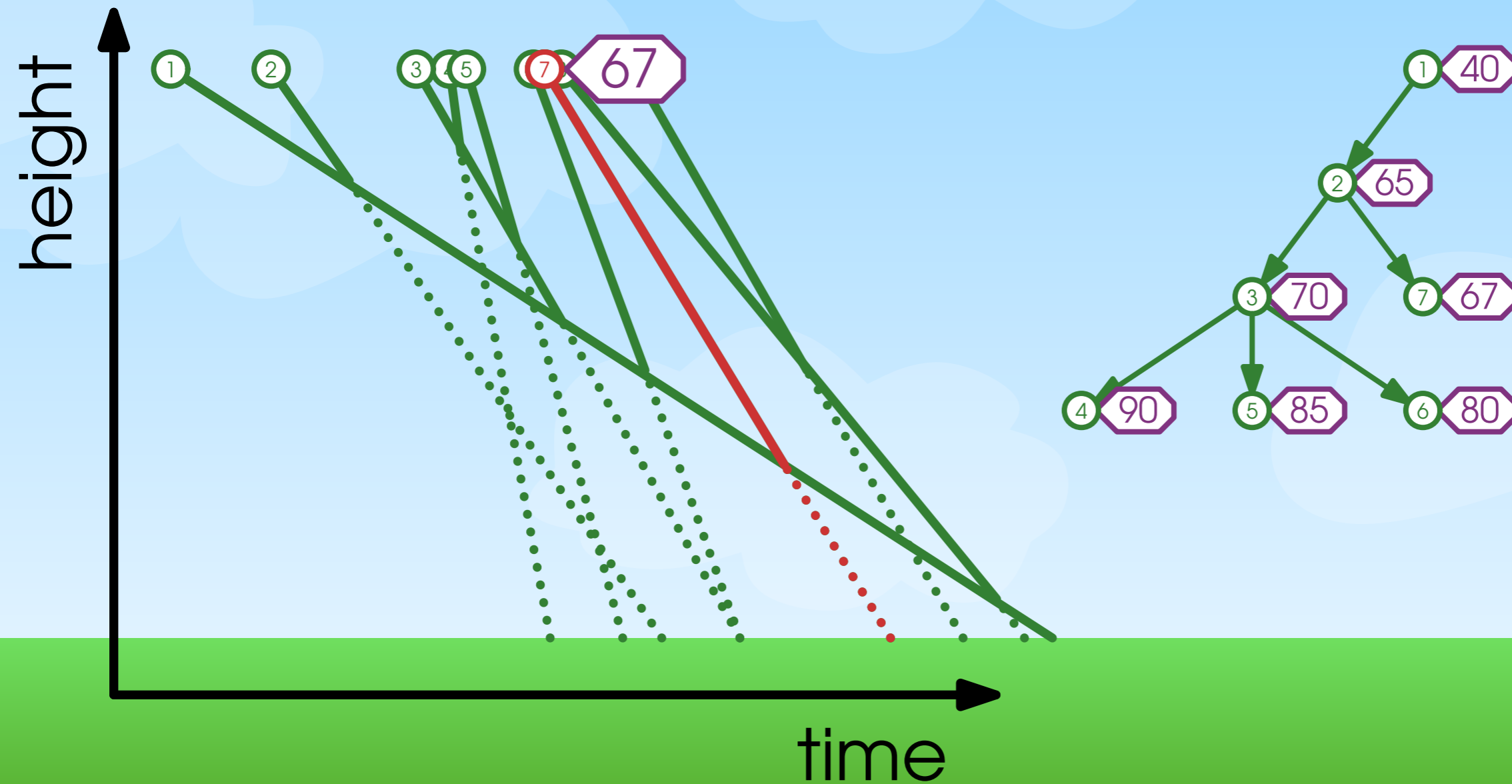
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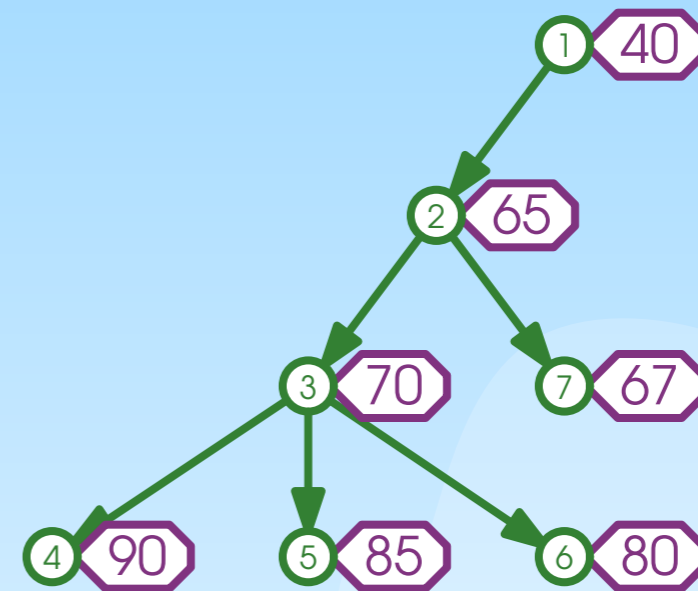
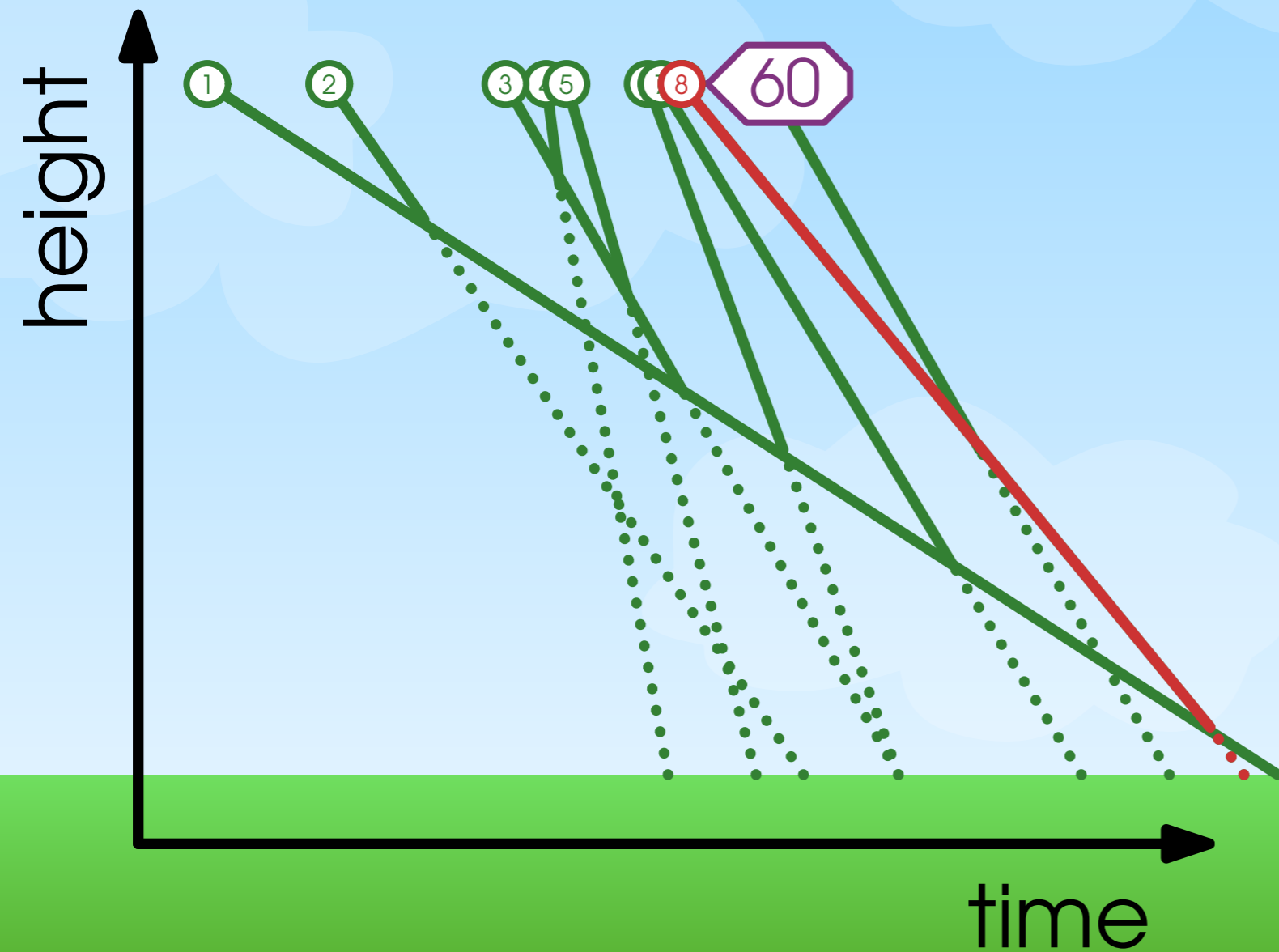
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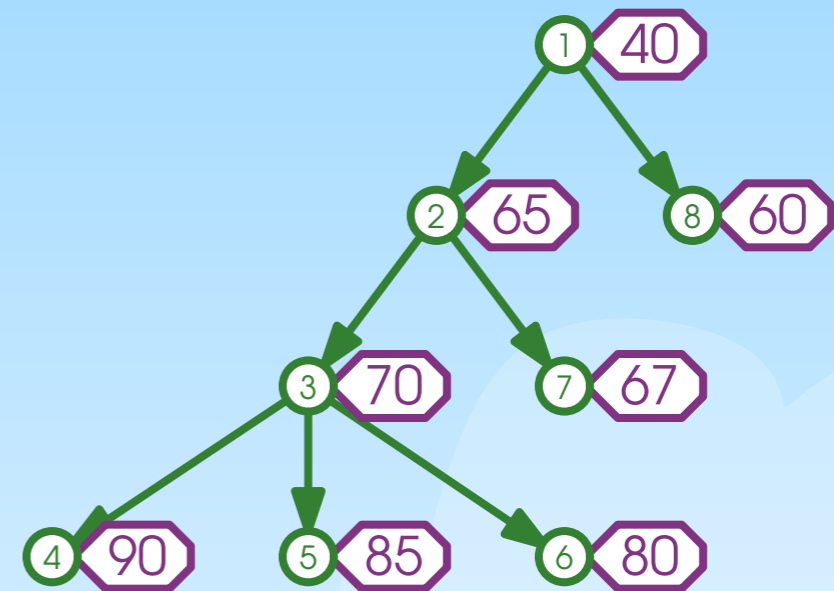
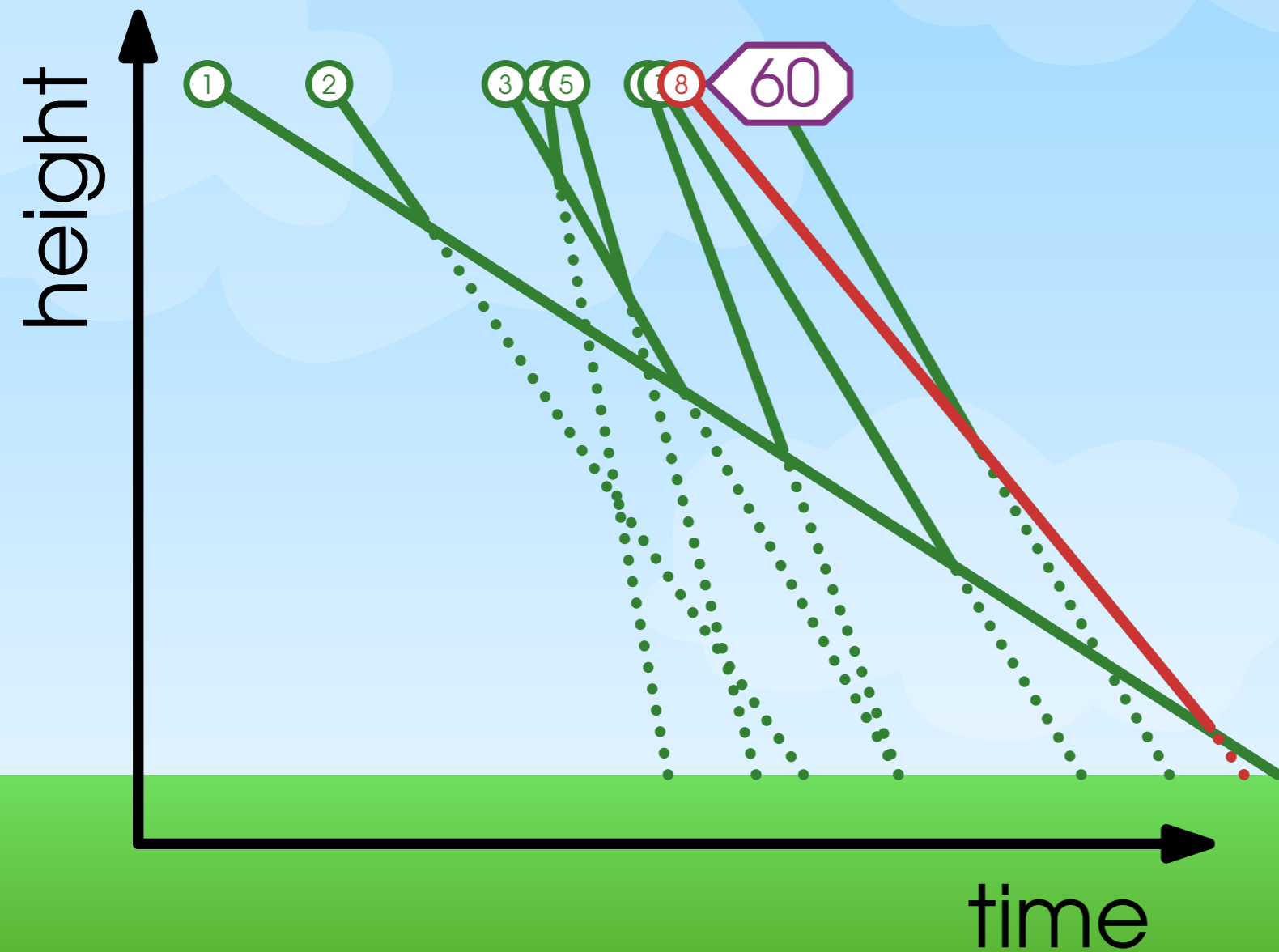
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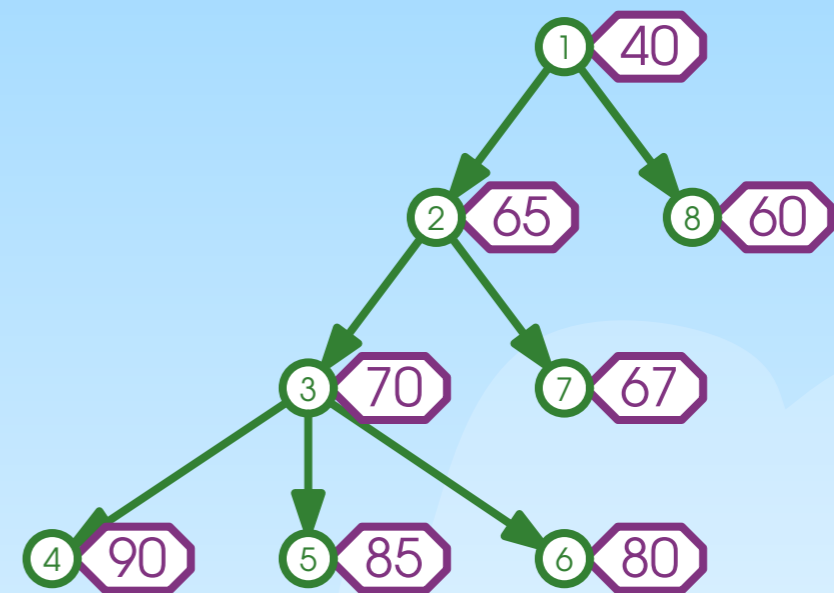
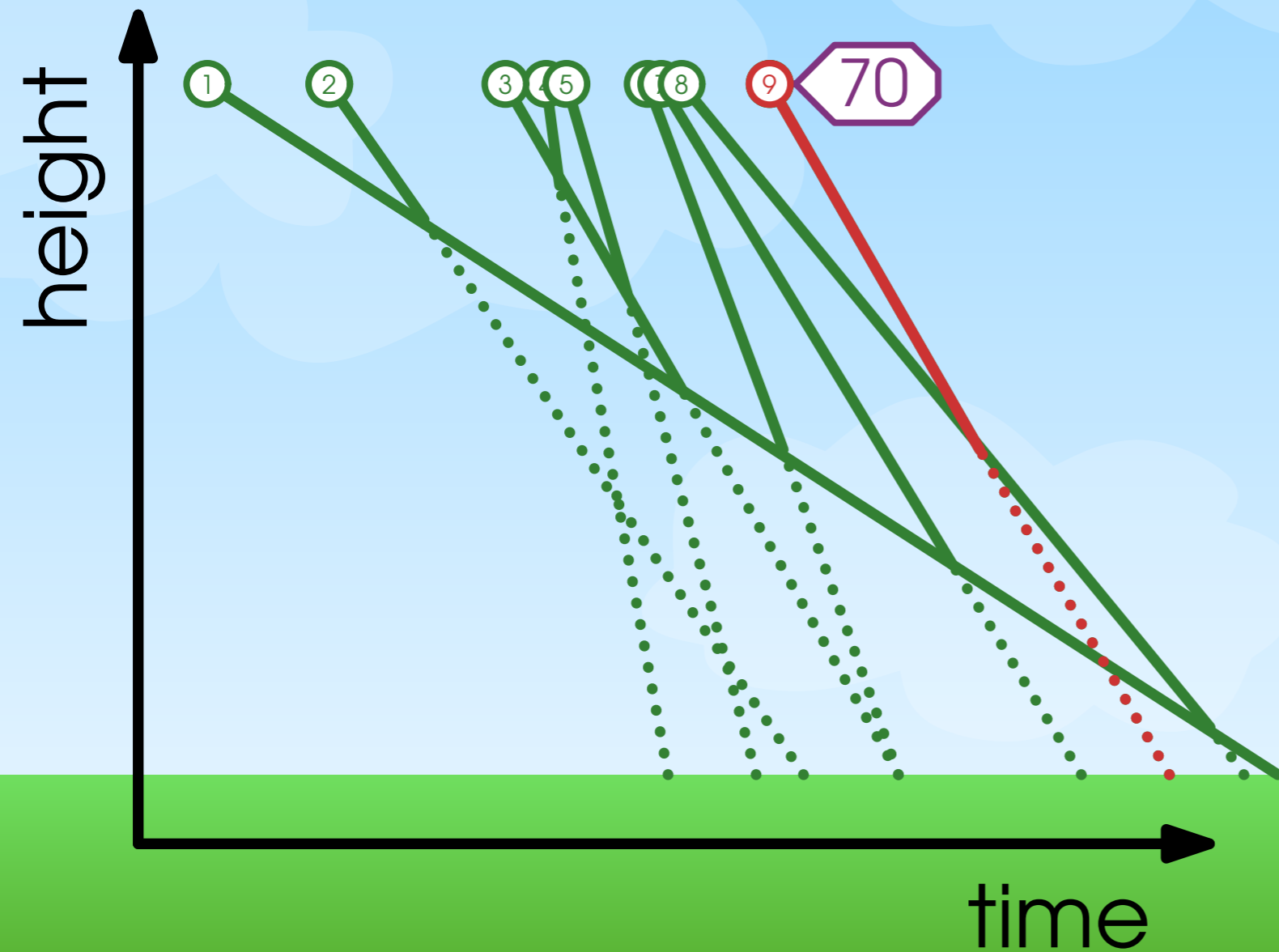
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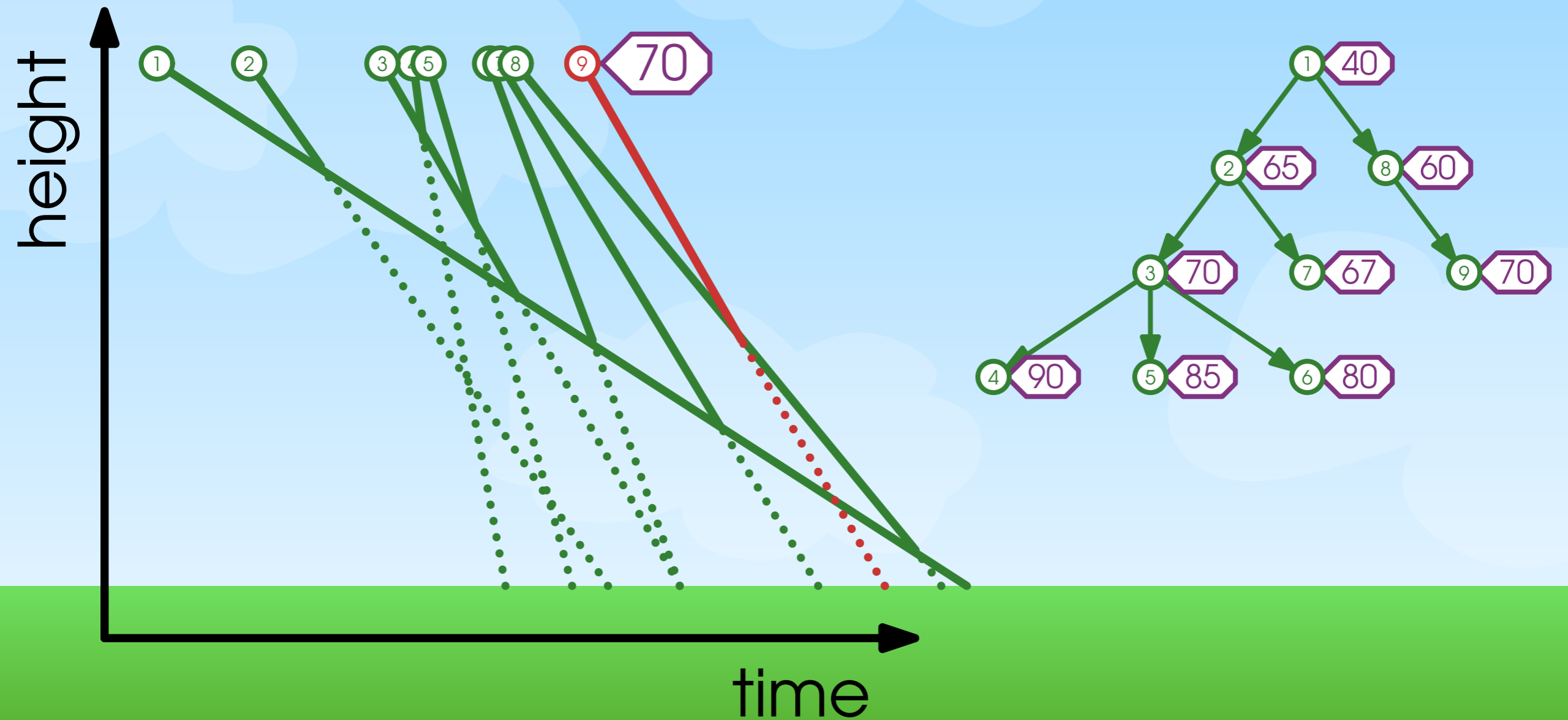
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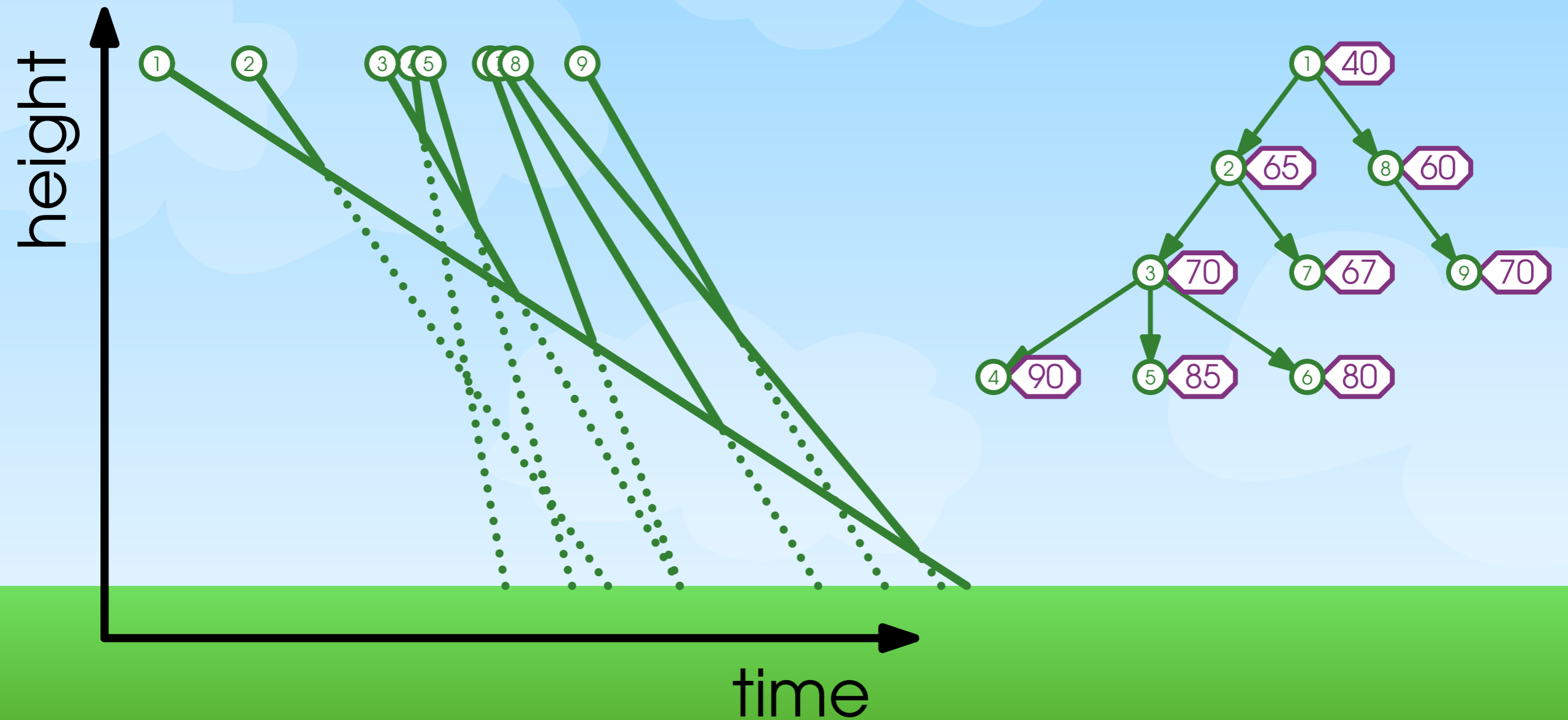
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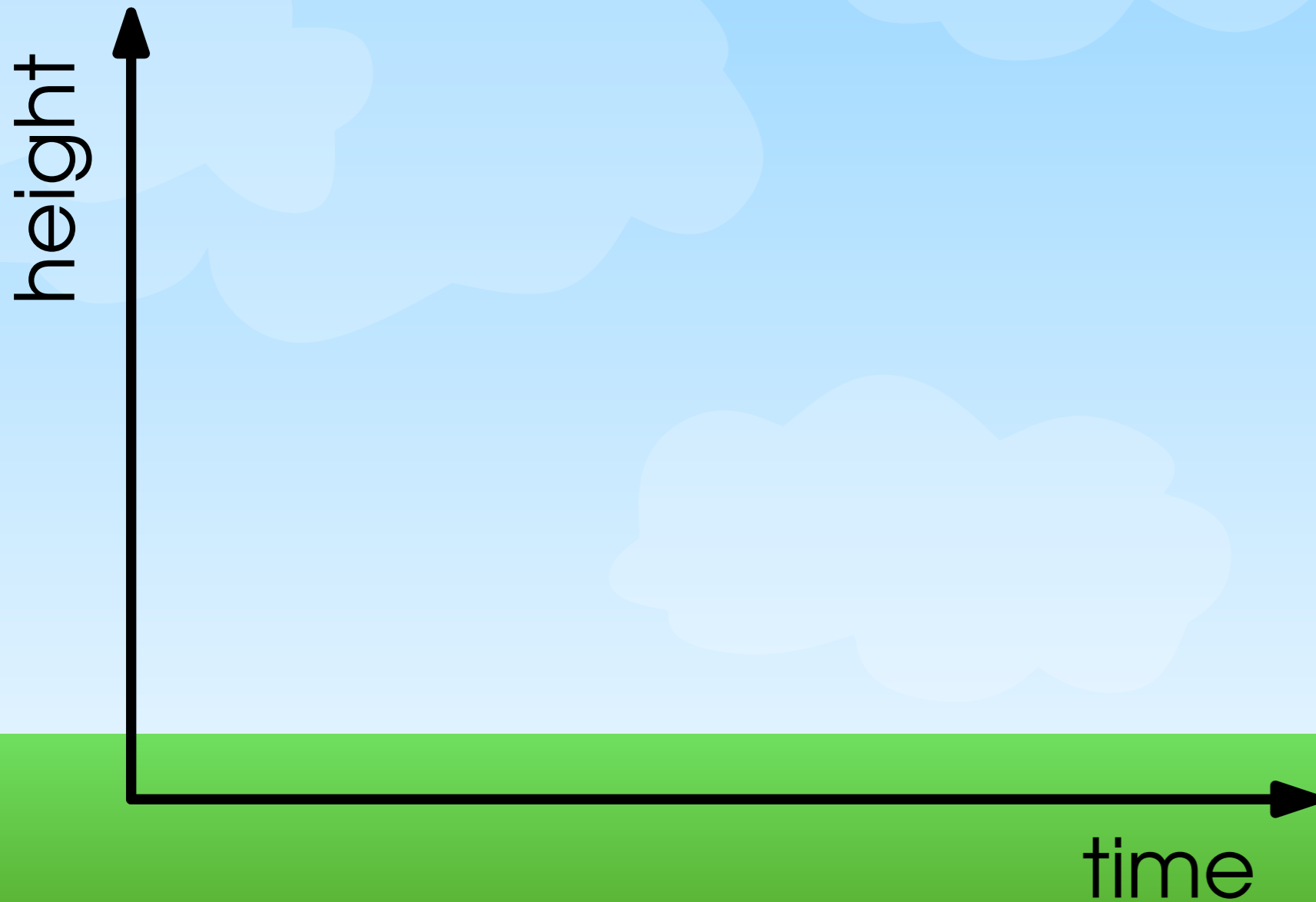
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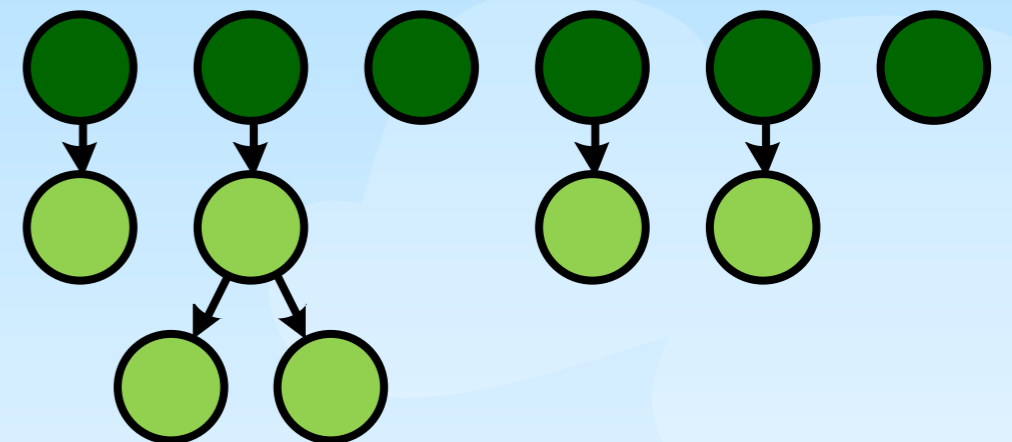
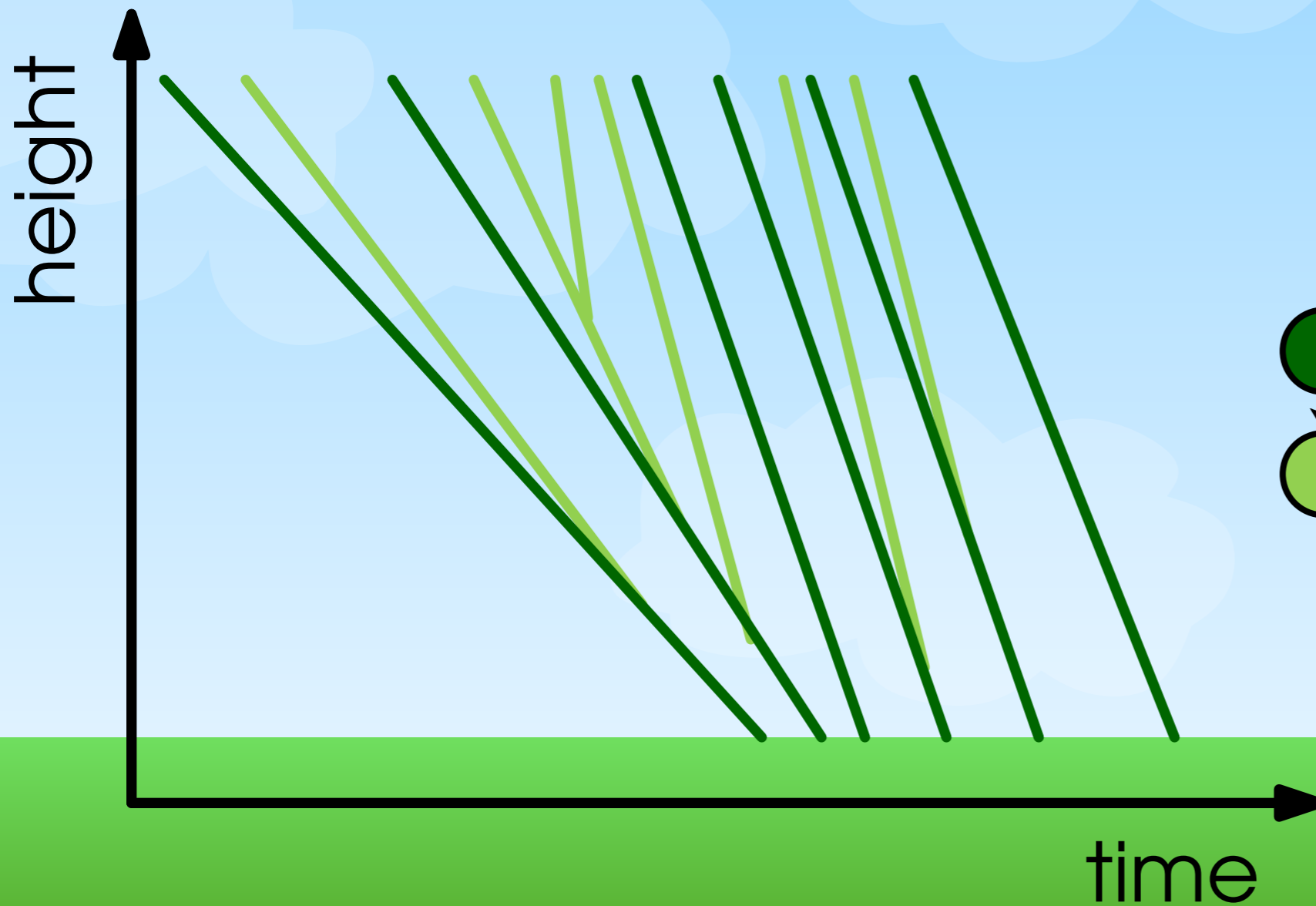
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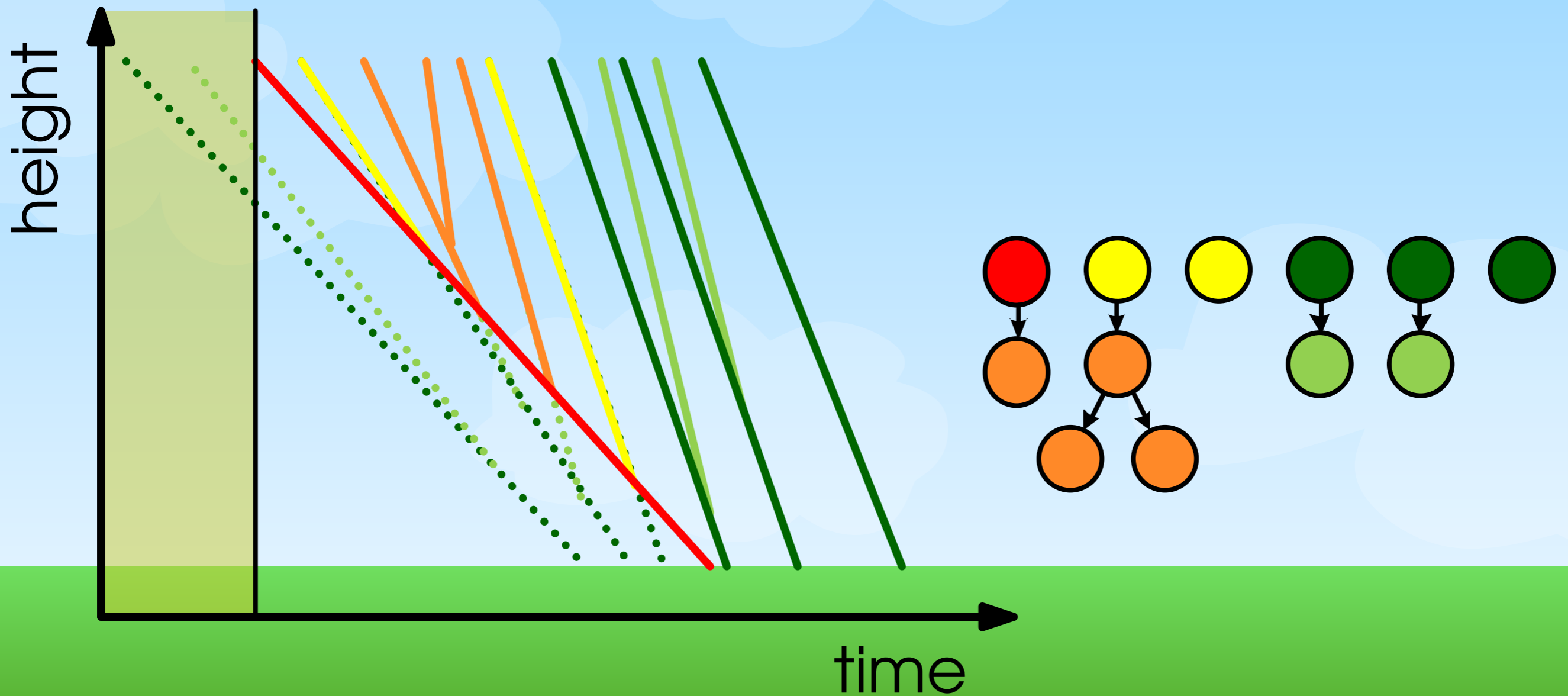
THE ALGORITHM



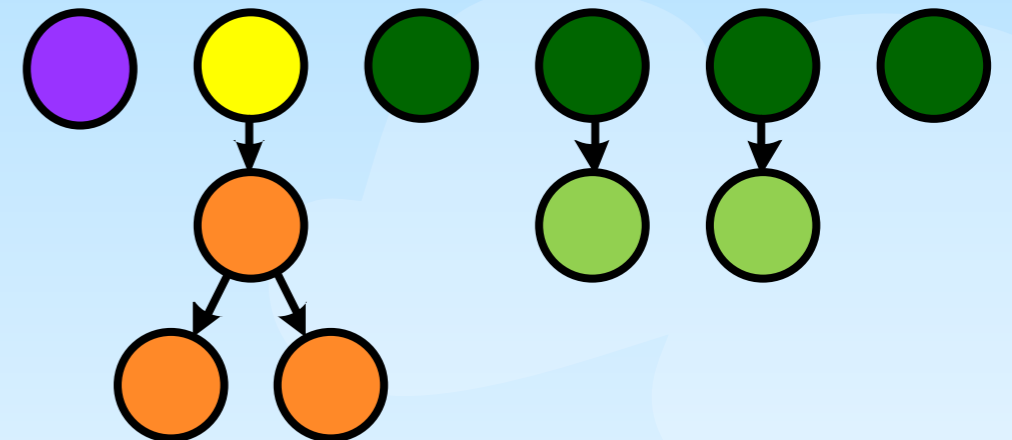
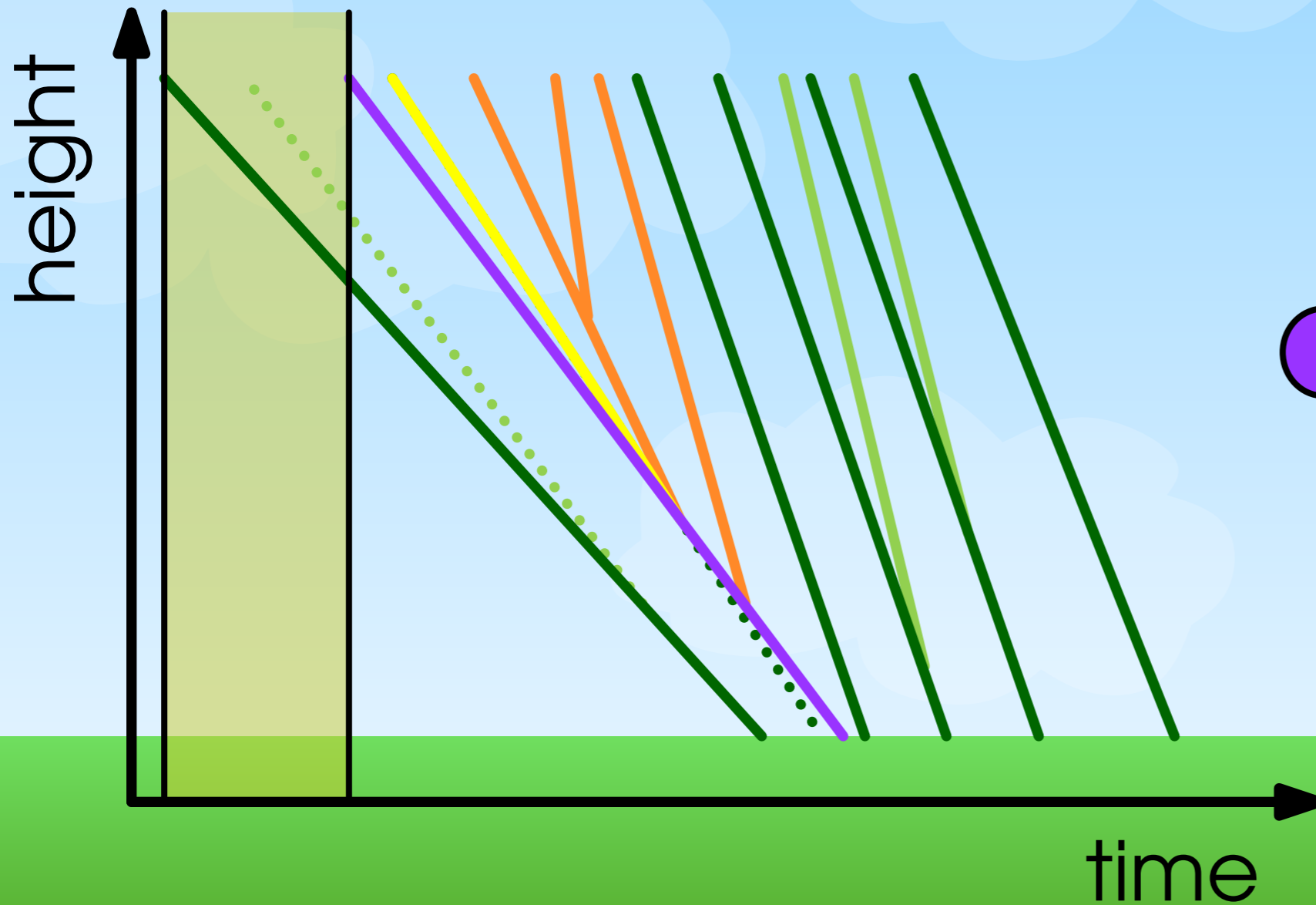
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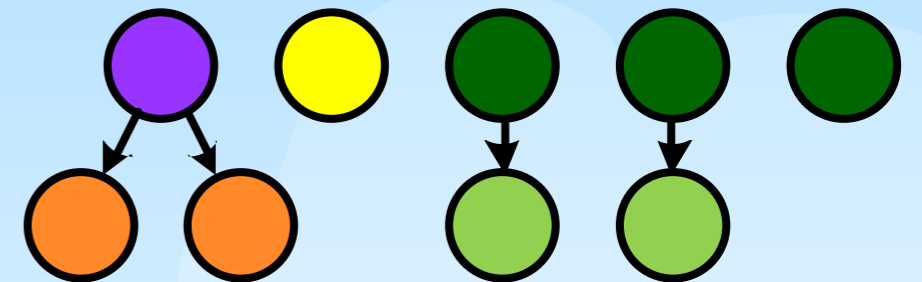
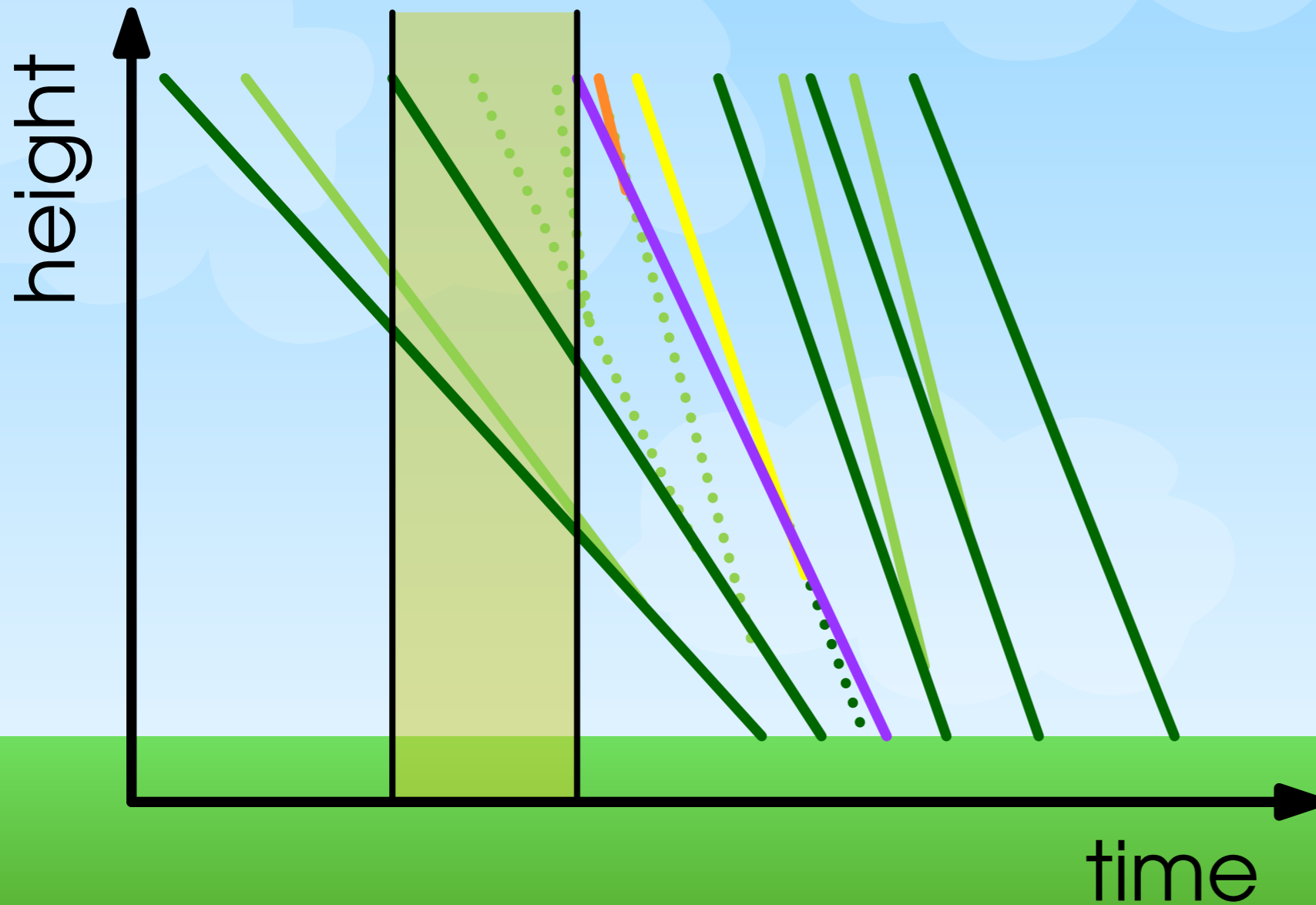
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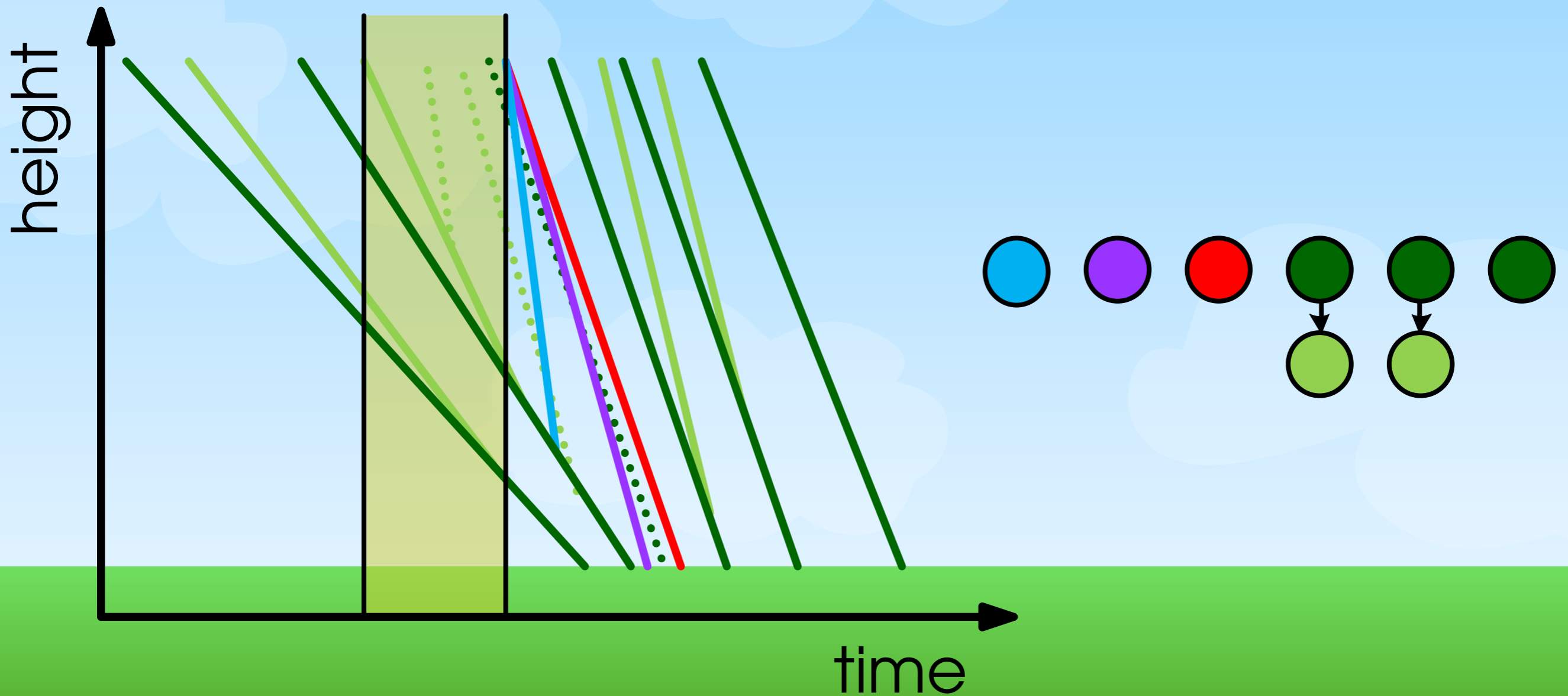
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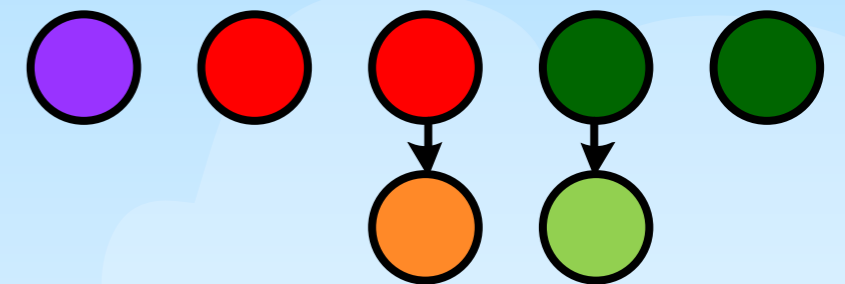
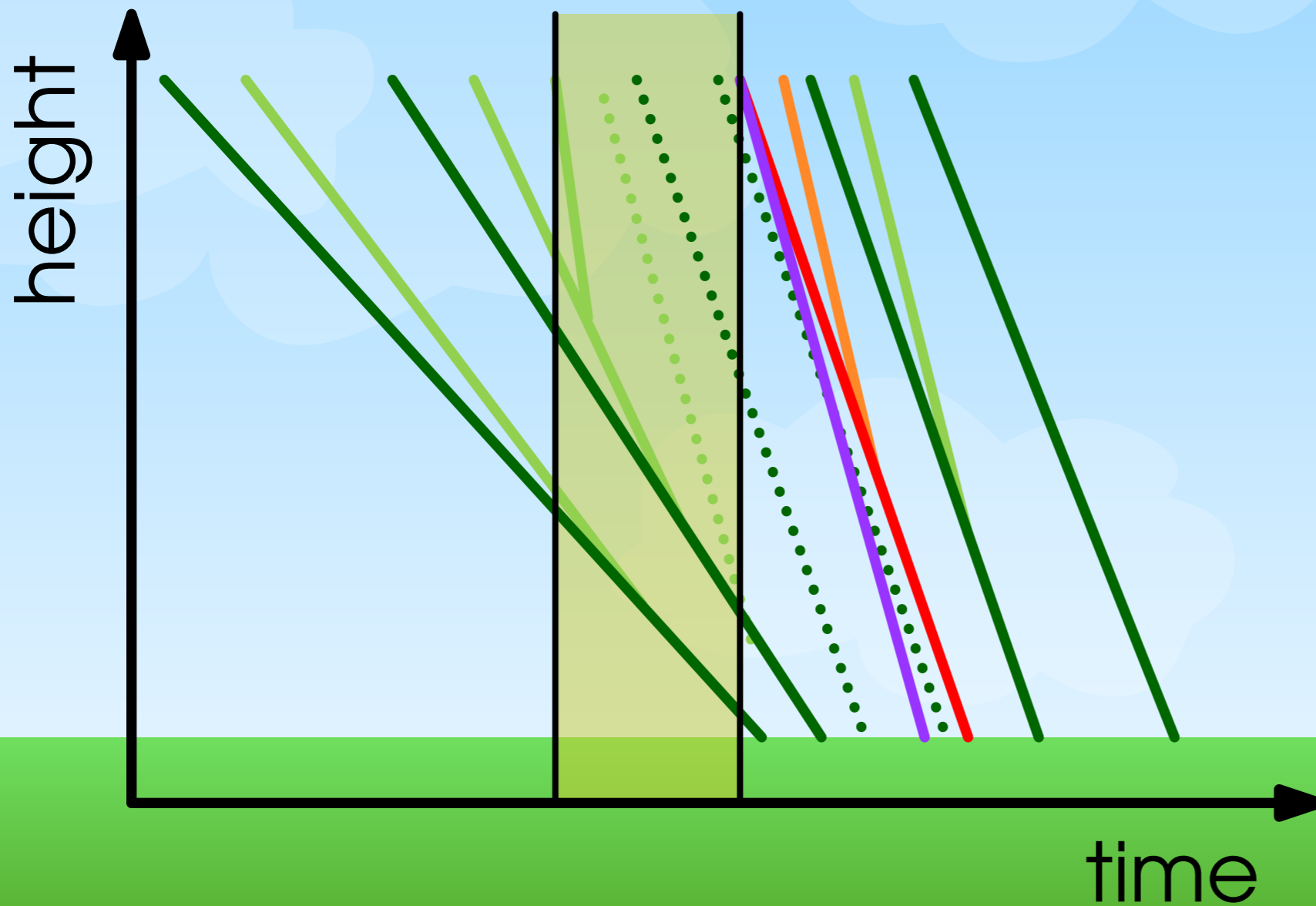
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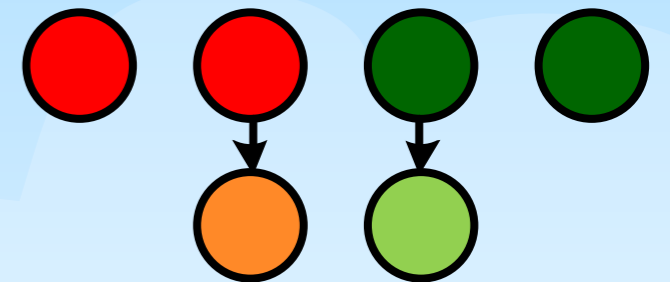
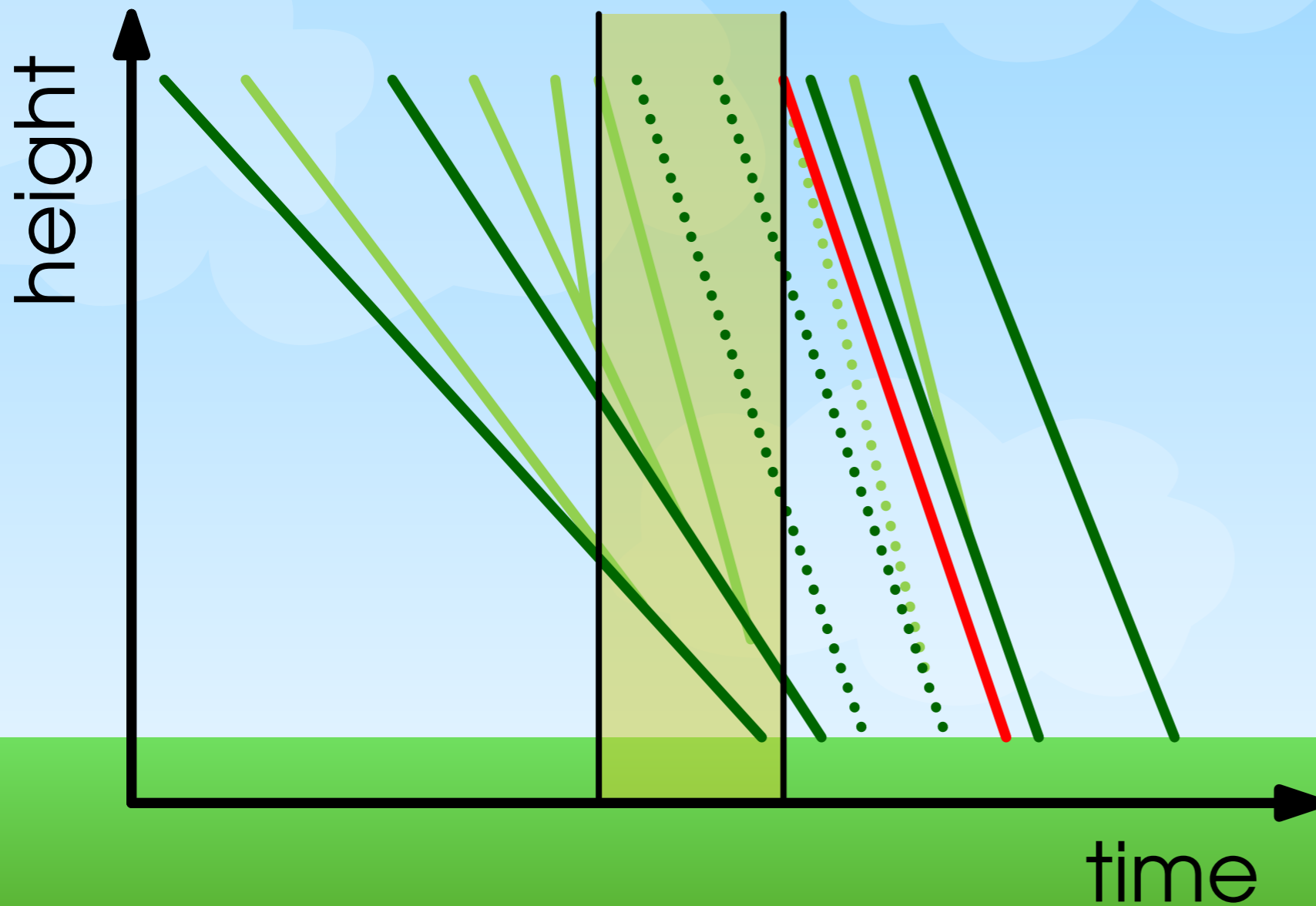
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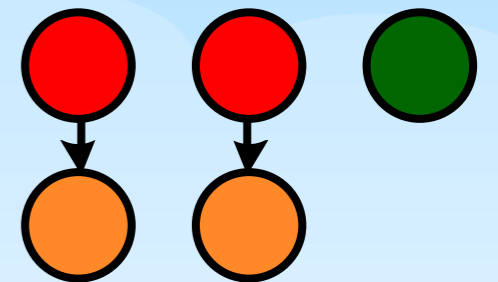
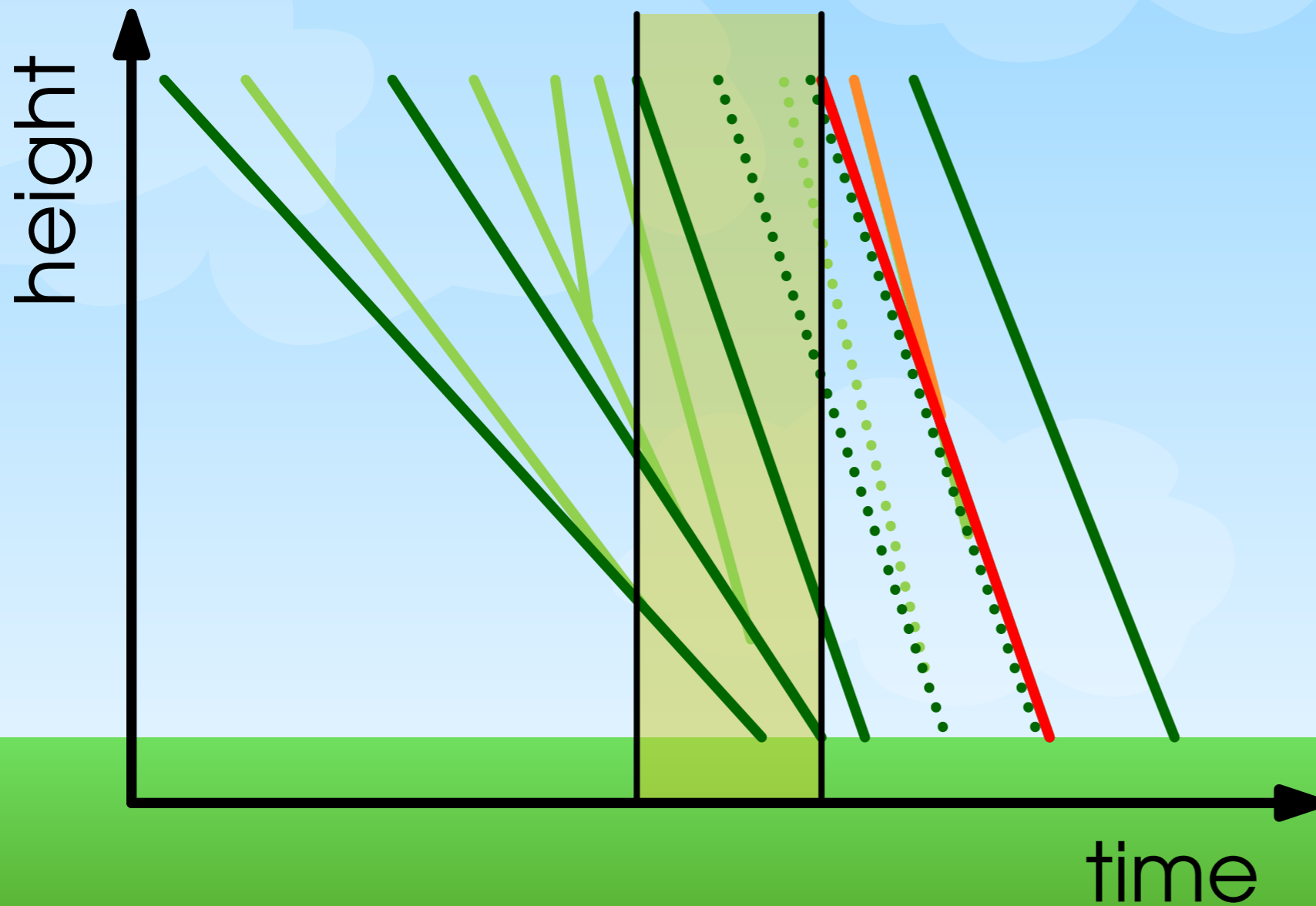
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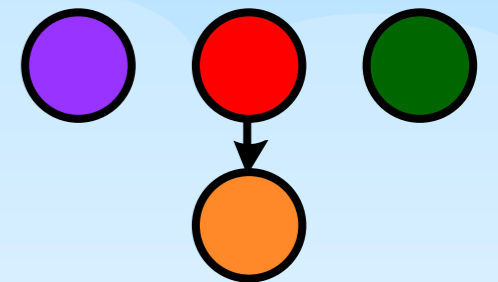
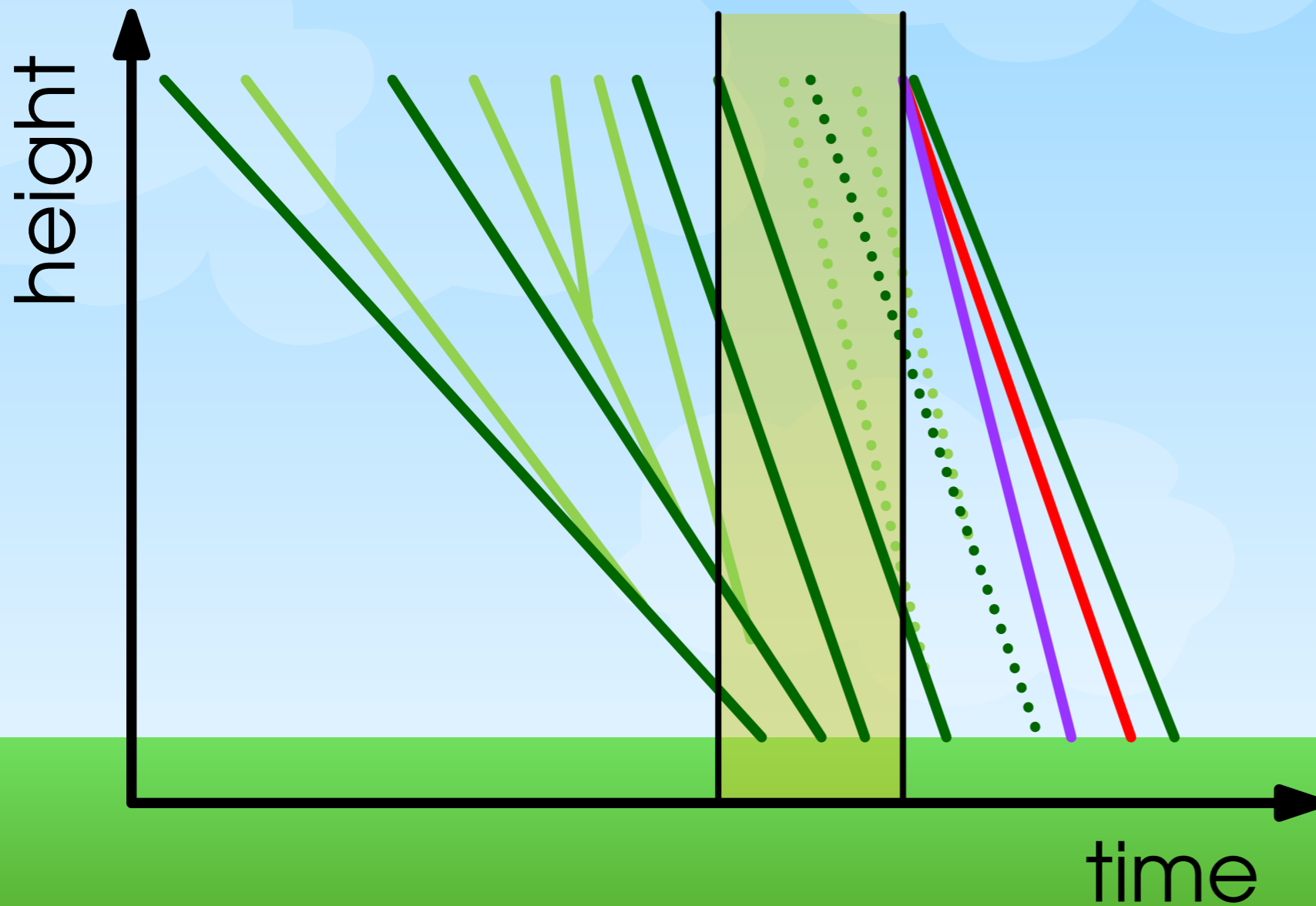
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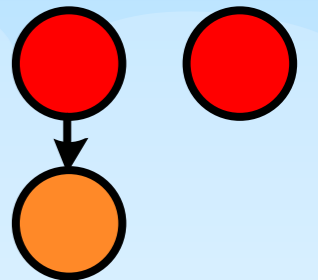
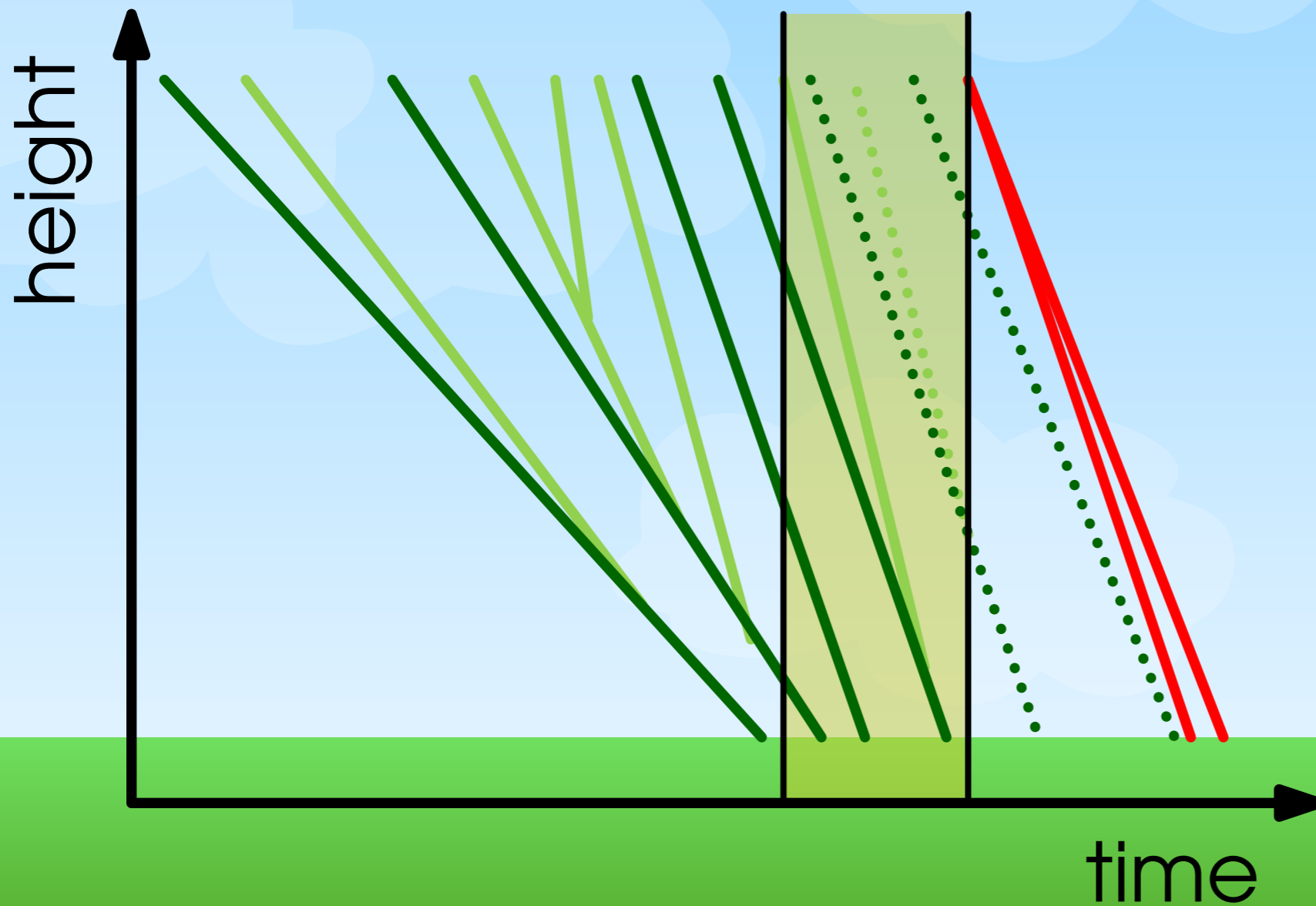
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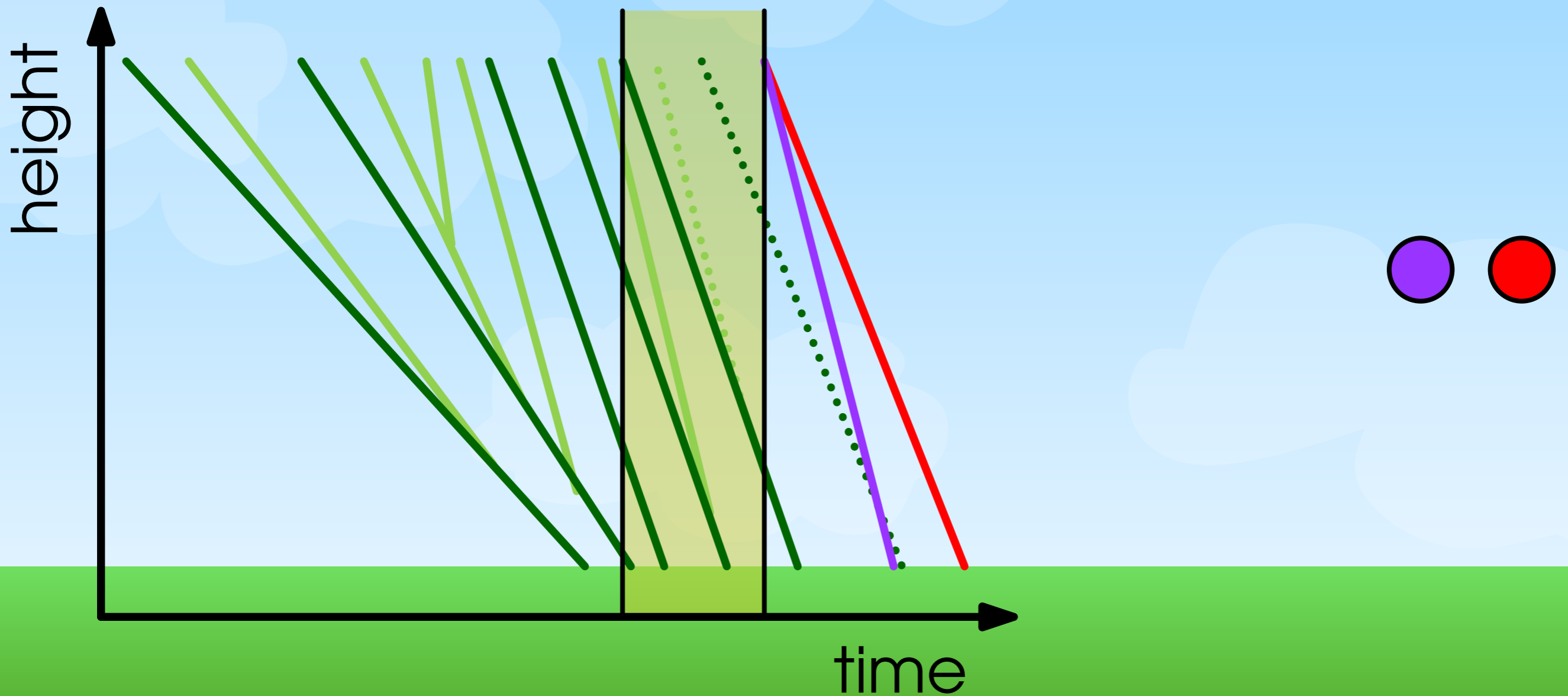
THE ALGORITHM



THE ALGORITHM



THE ALGORITHM



THE THEOREM

THE THEOREM

“We can compute an optimal interval of given length that minimizes the delay in $O(n \log n)$ time.”

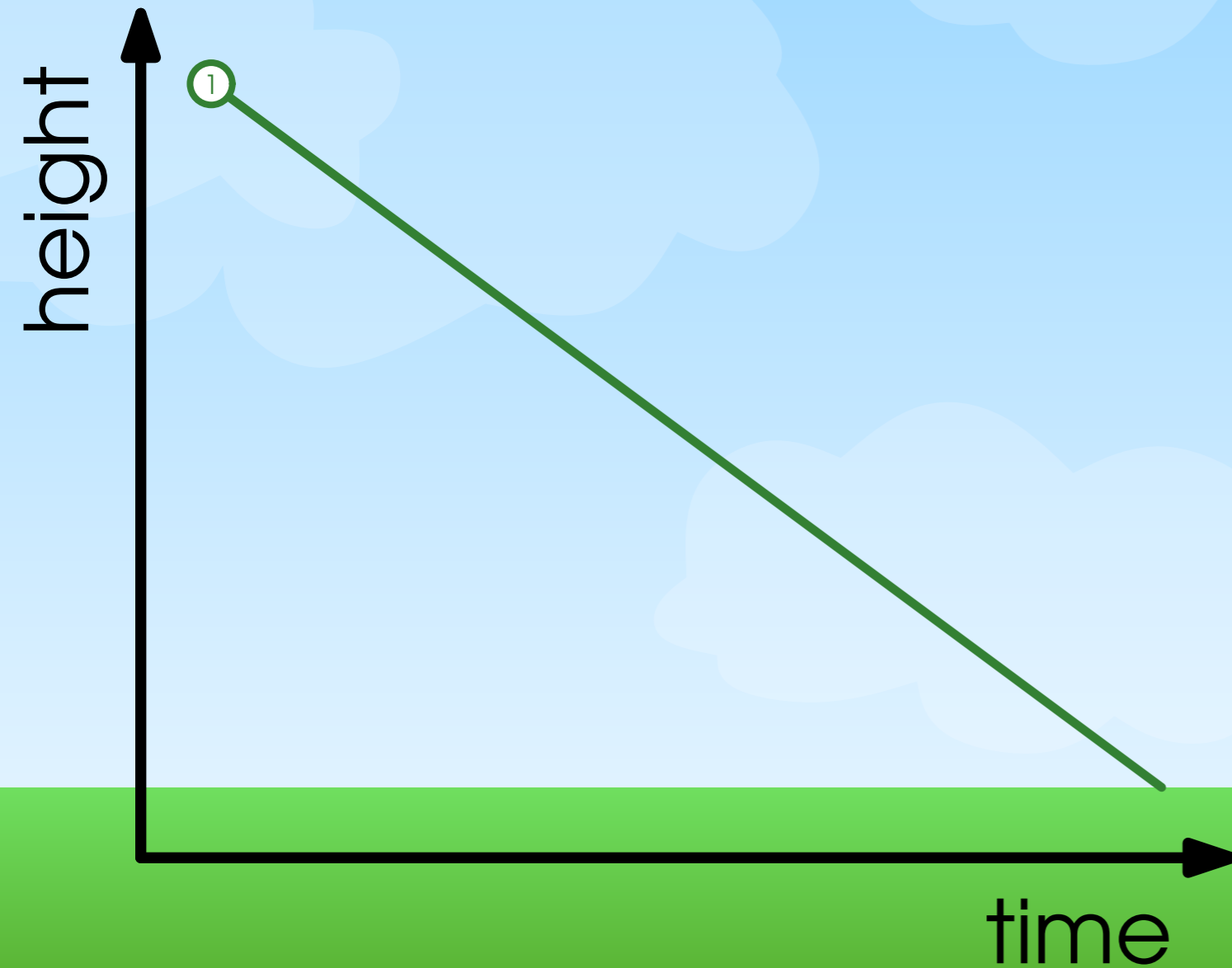
THE EXTENSION

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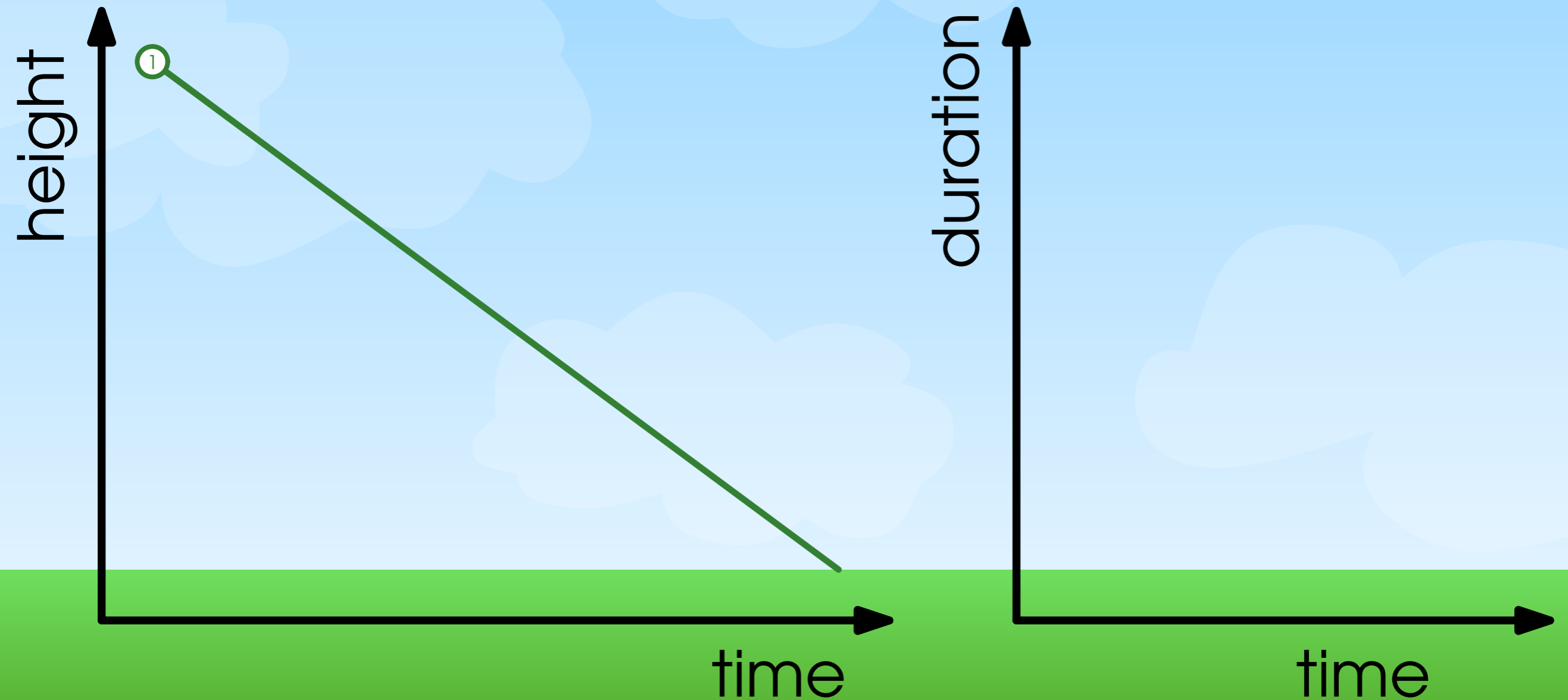
“We can also build a data structure of size $O(n^2 \alpha(n))$ in $O(n^2 \log n)$ time to do that in only $O(\log n)$ time!”

THE XMAS DIAGRAM

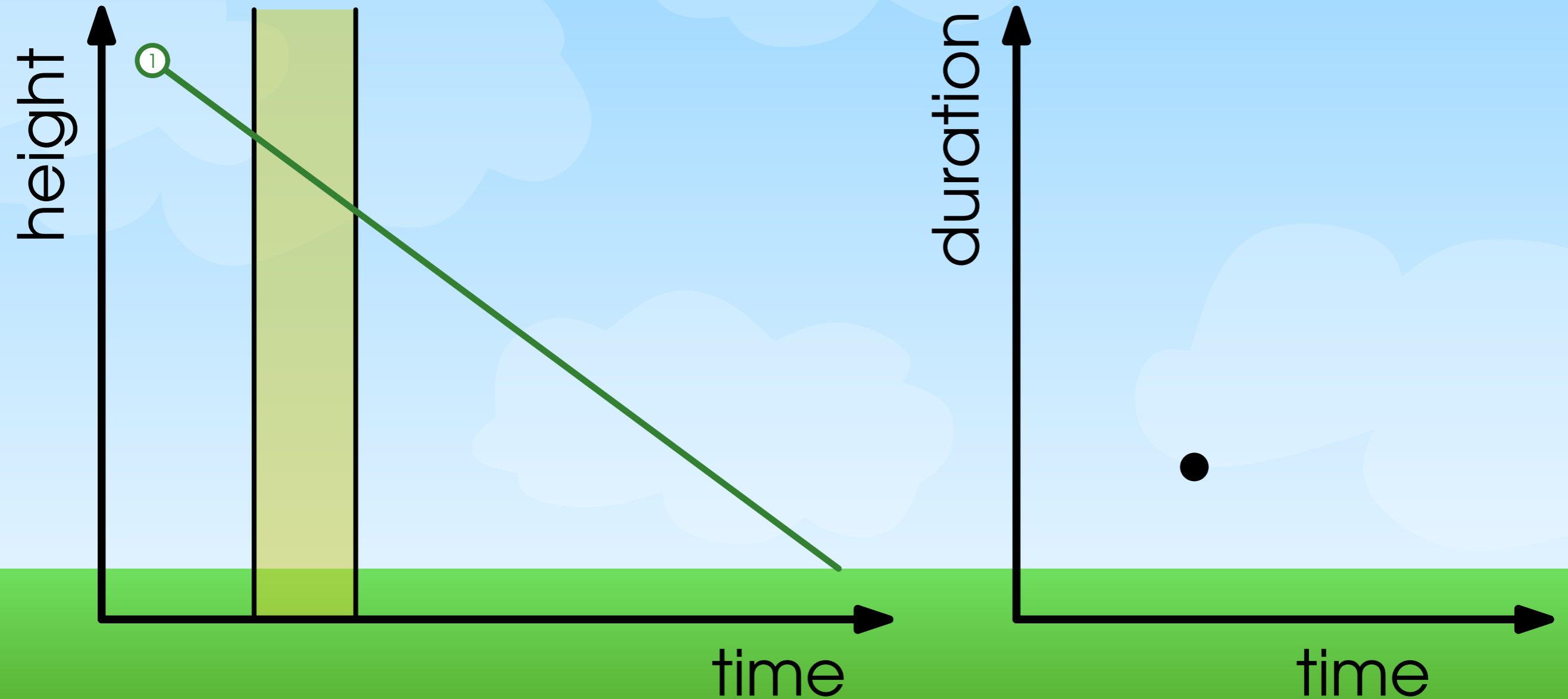
THE XMAS DIAGRAM



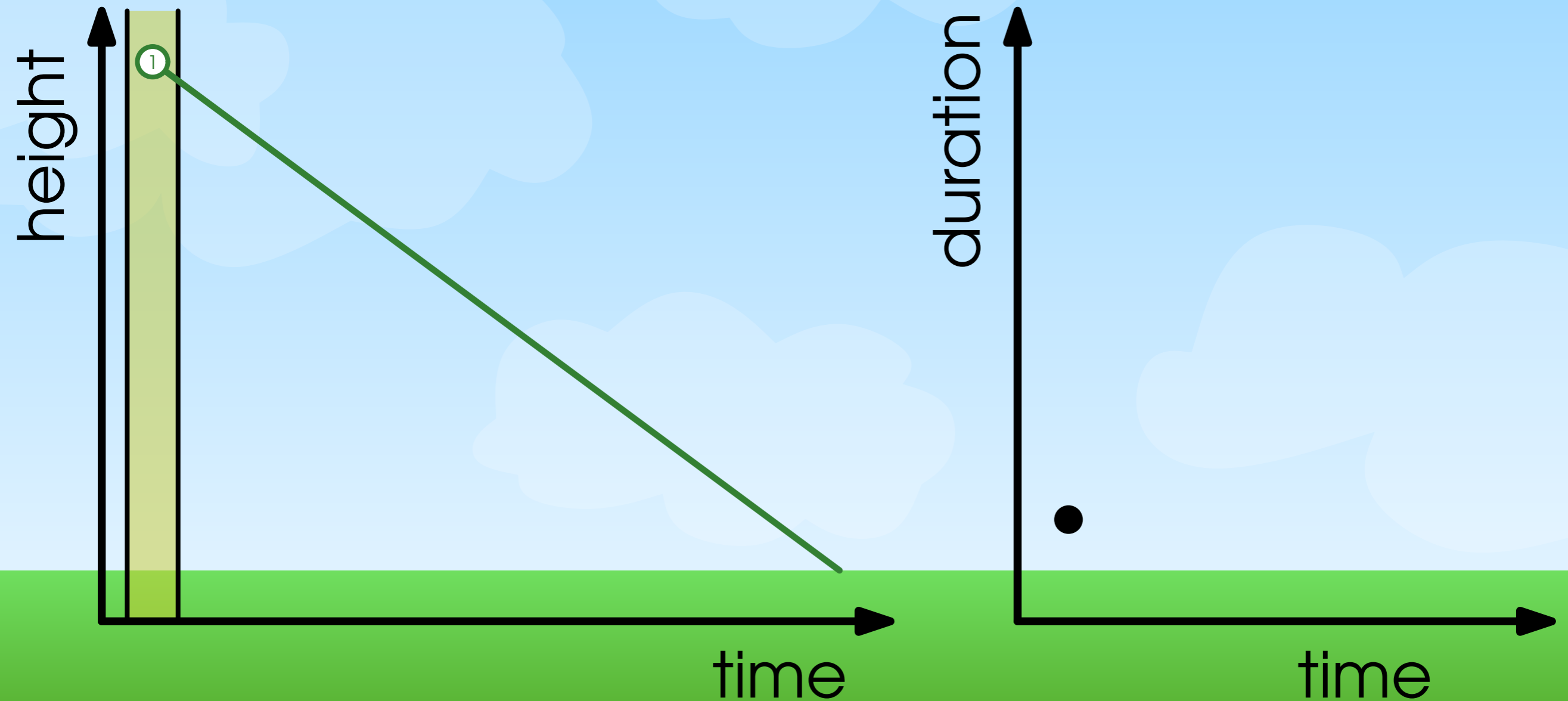
THE XMAS DIAGRAM



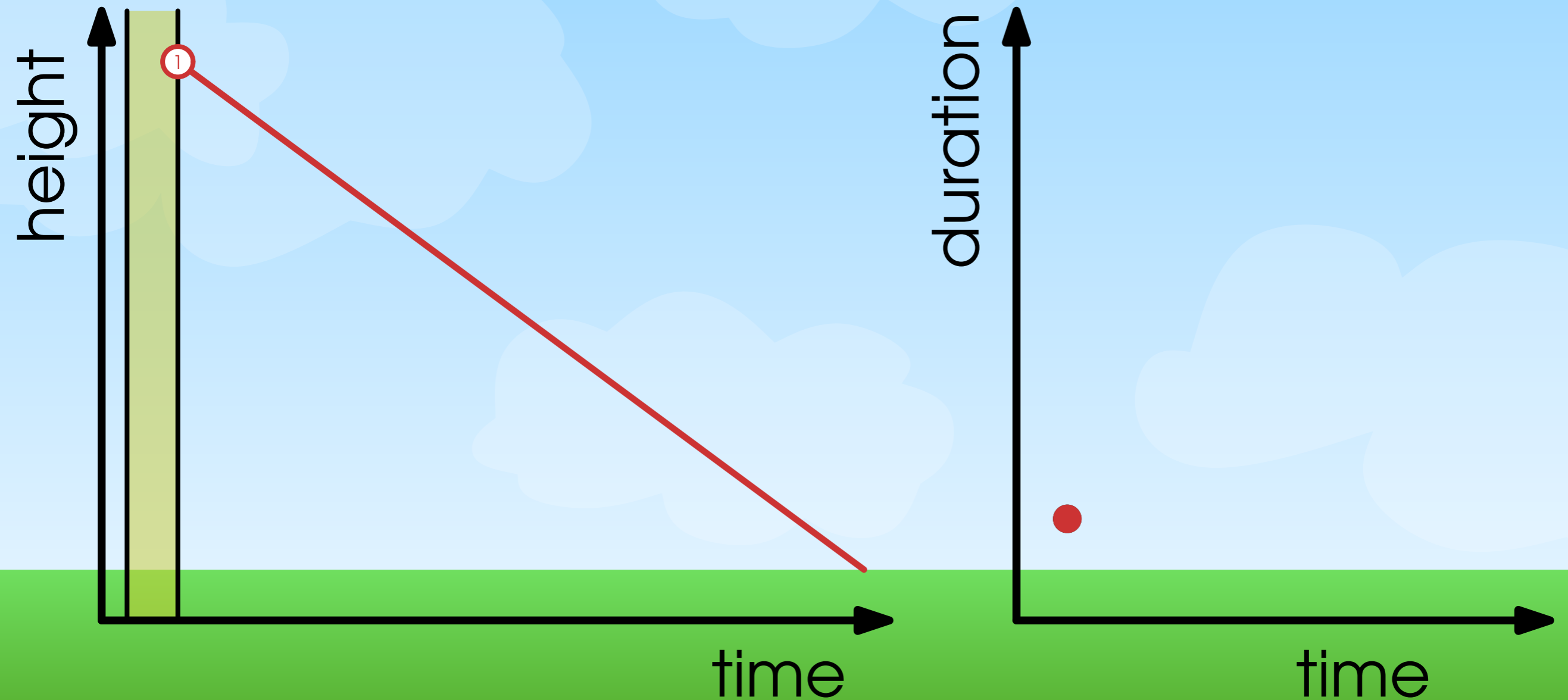
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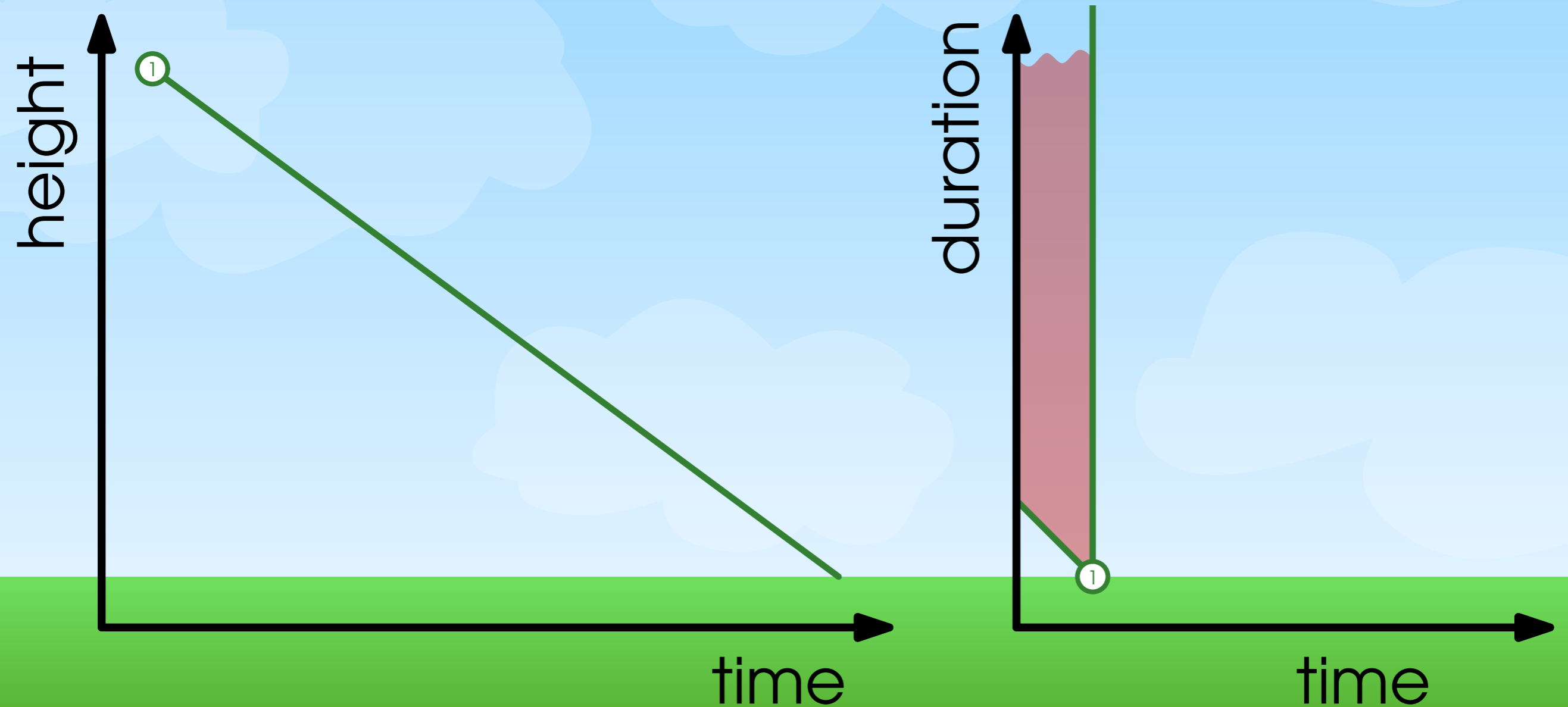
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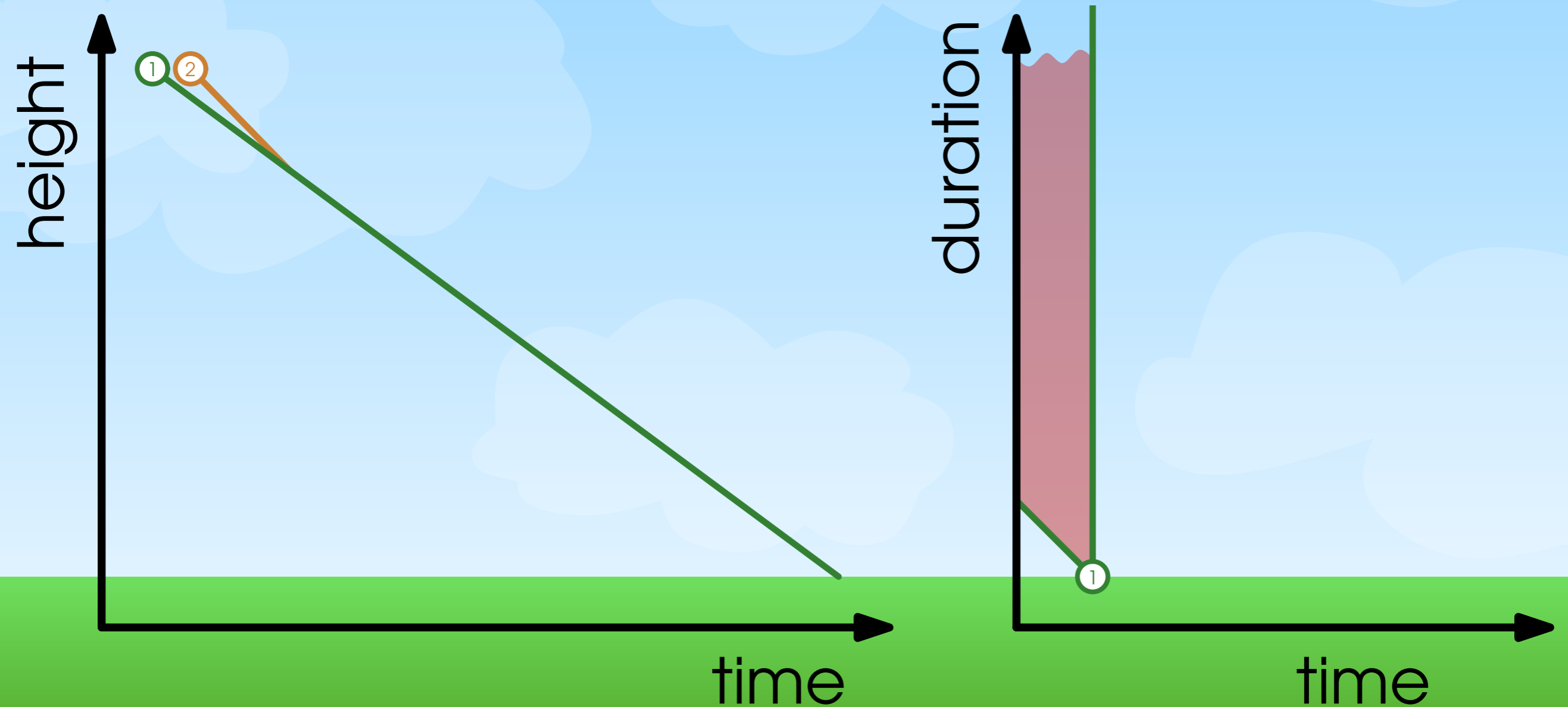
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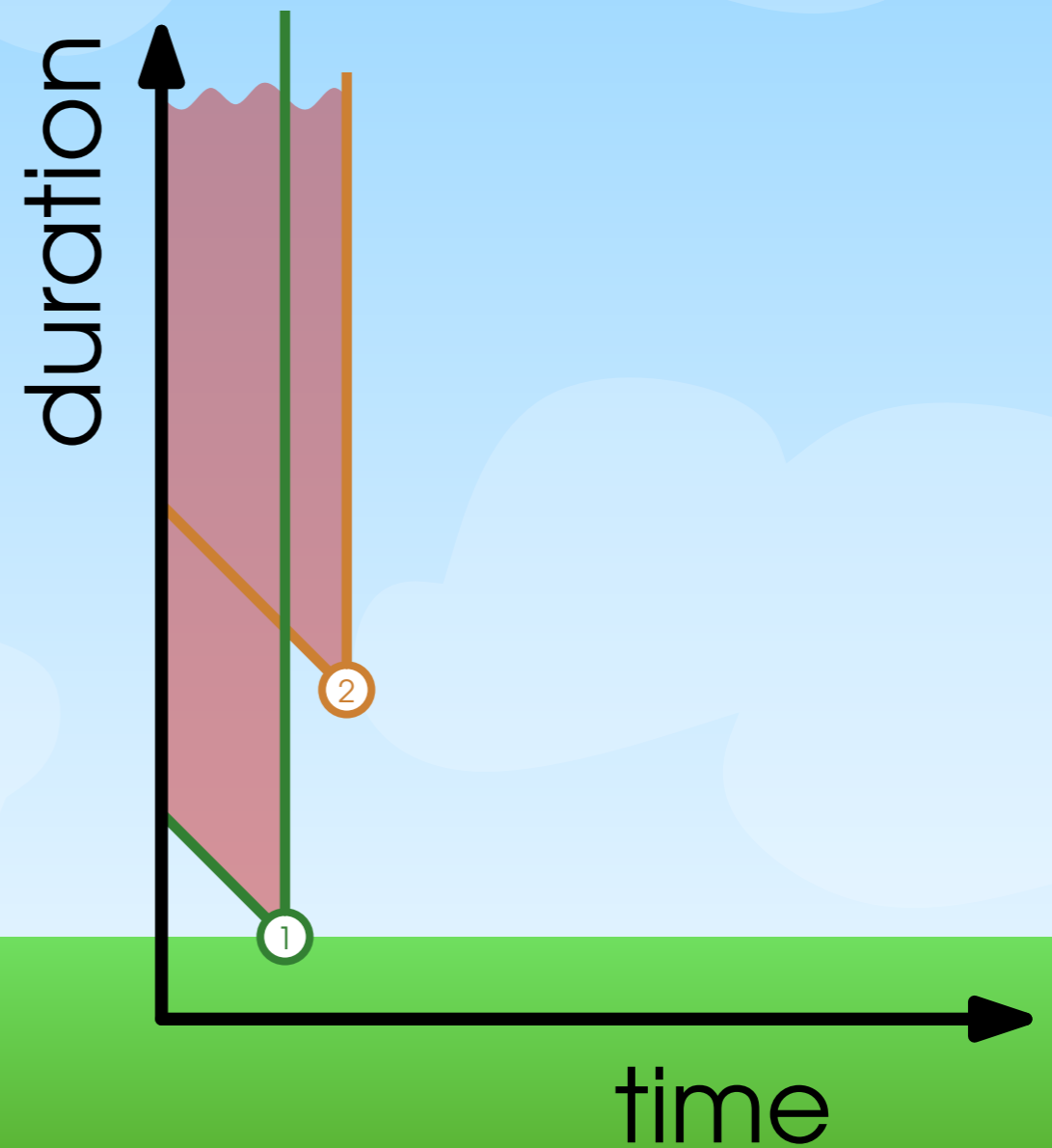
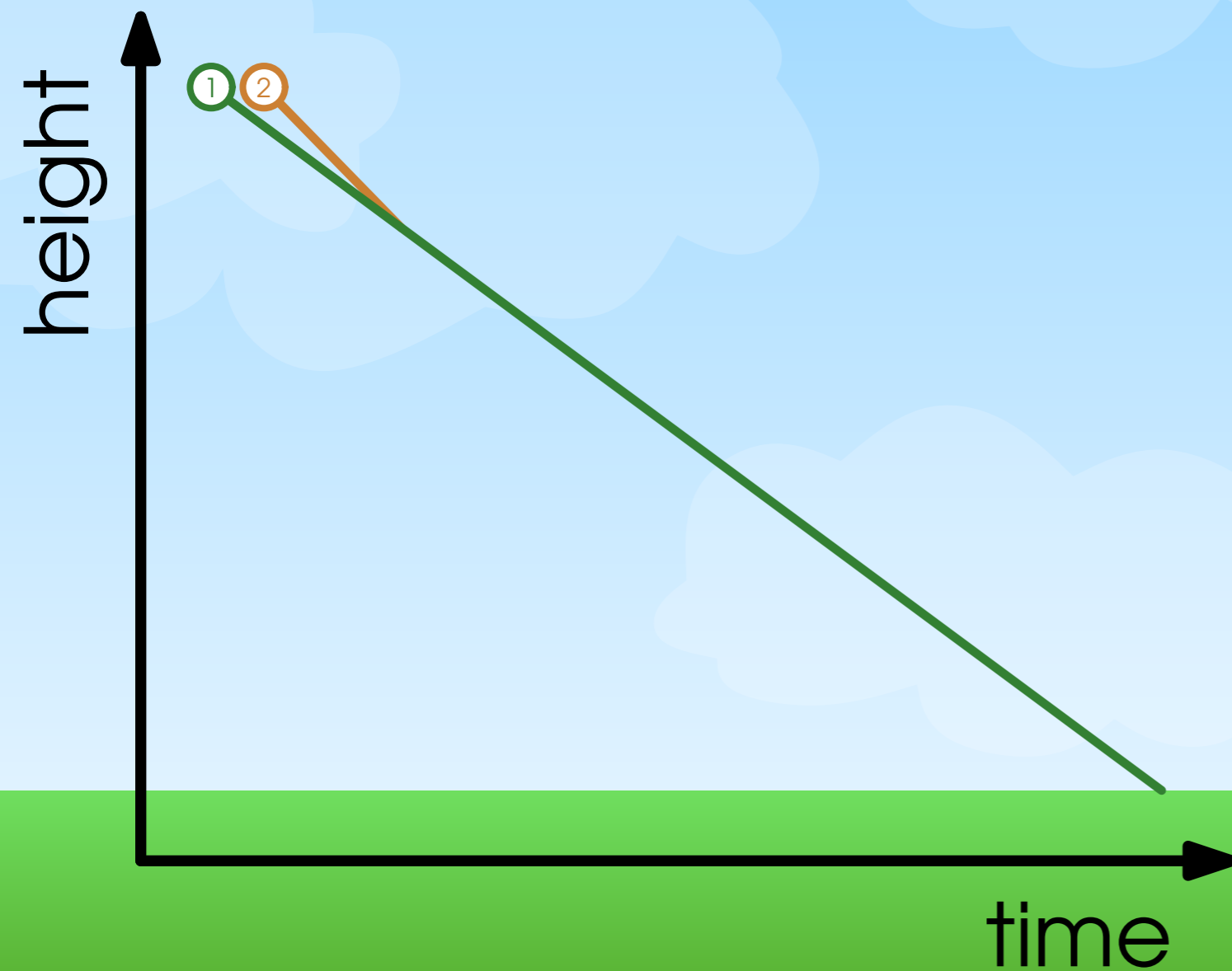
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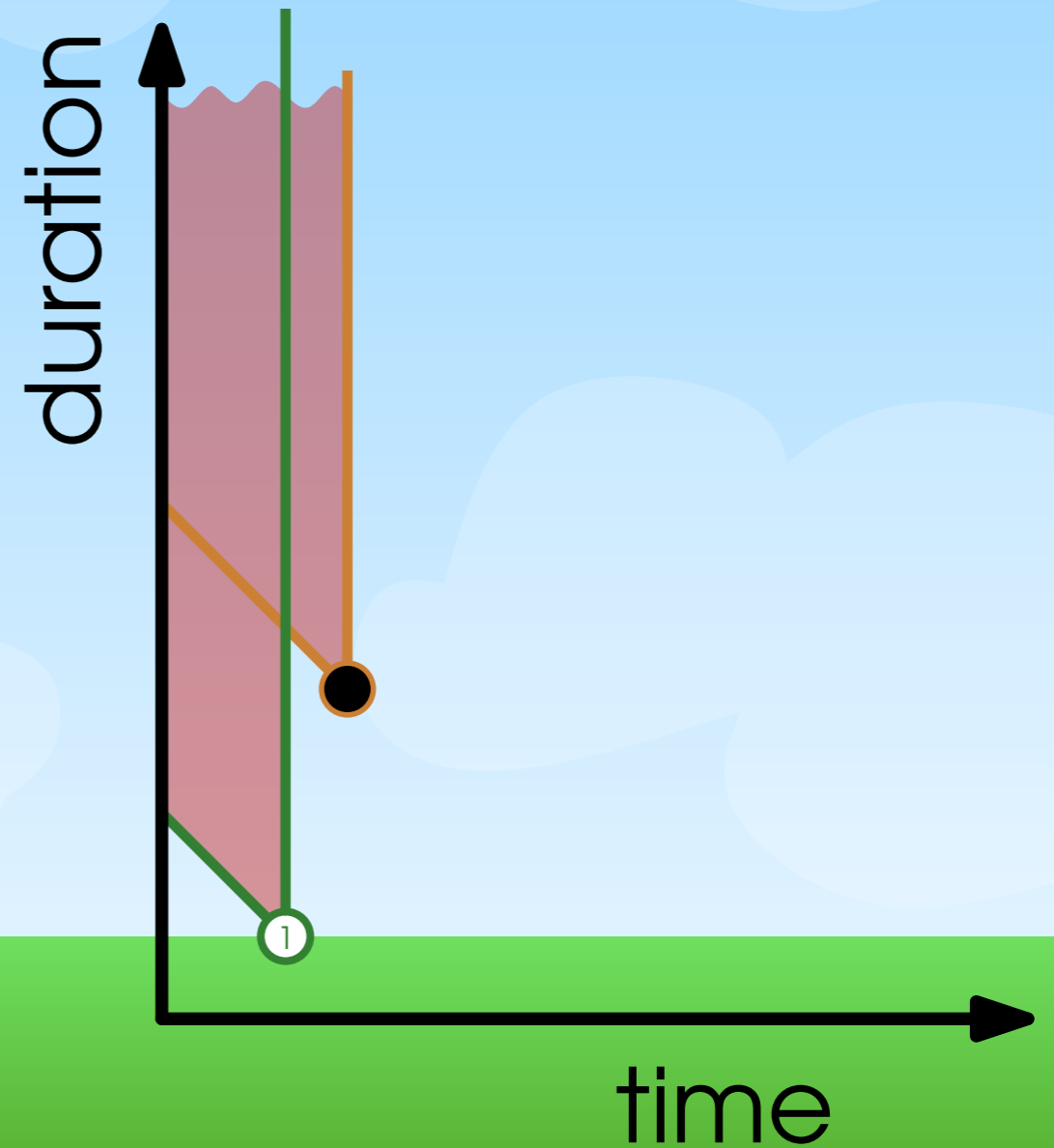
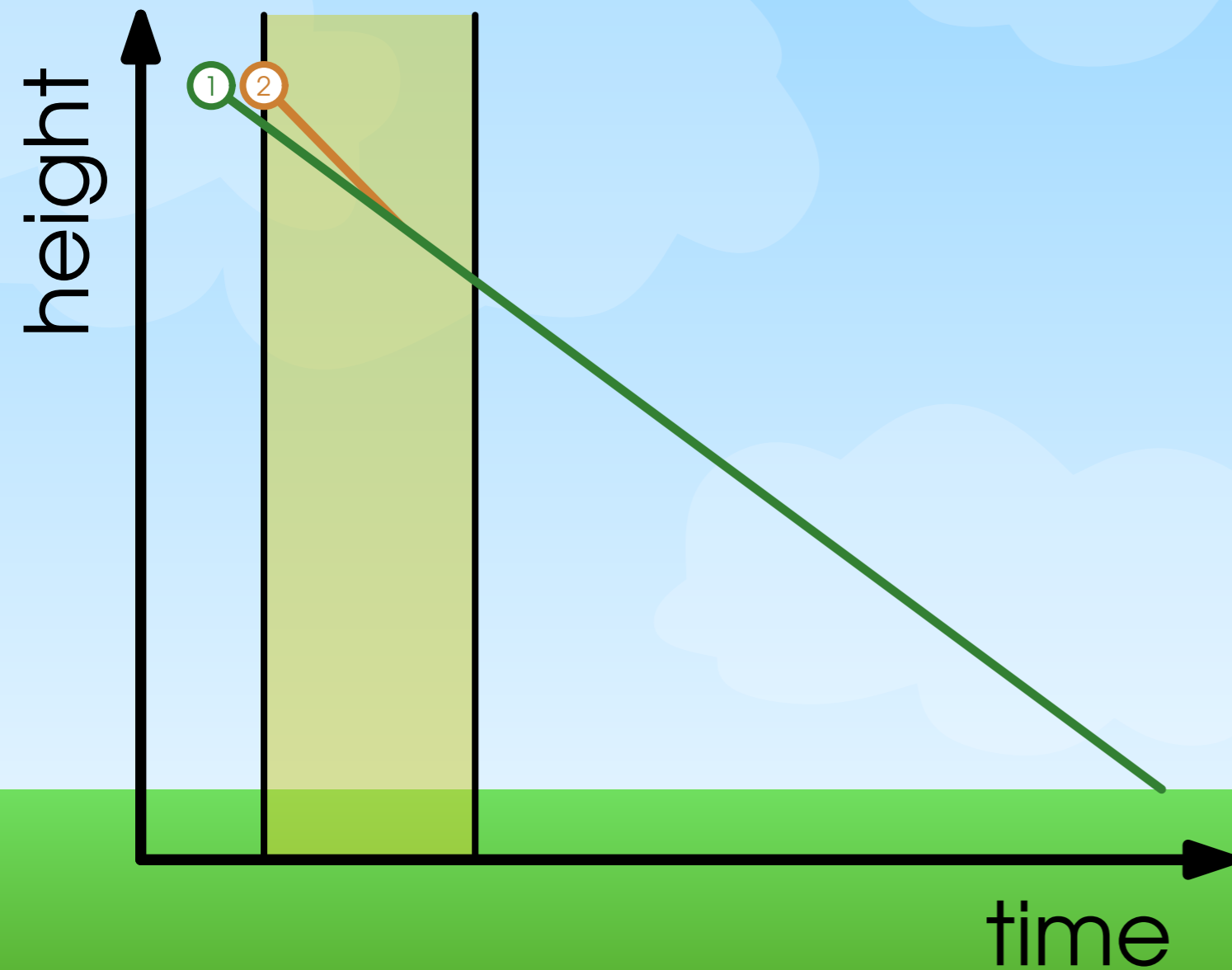
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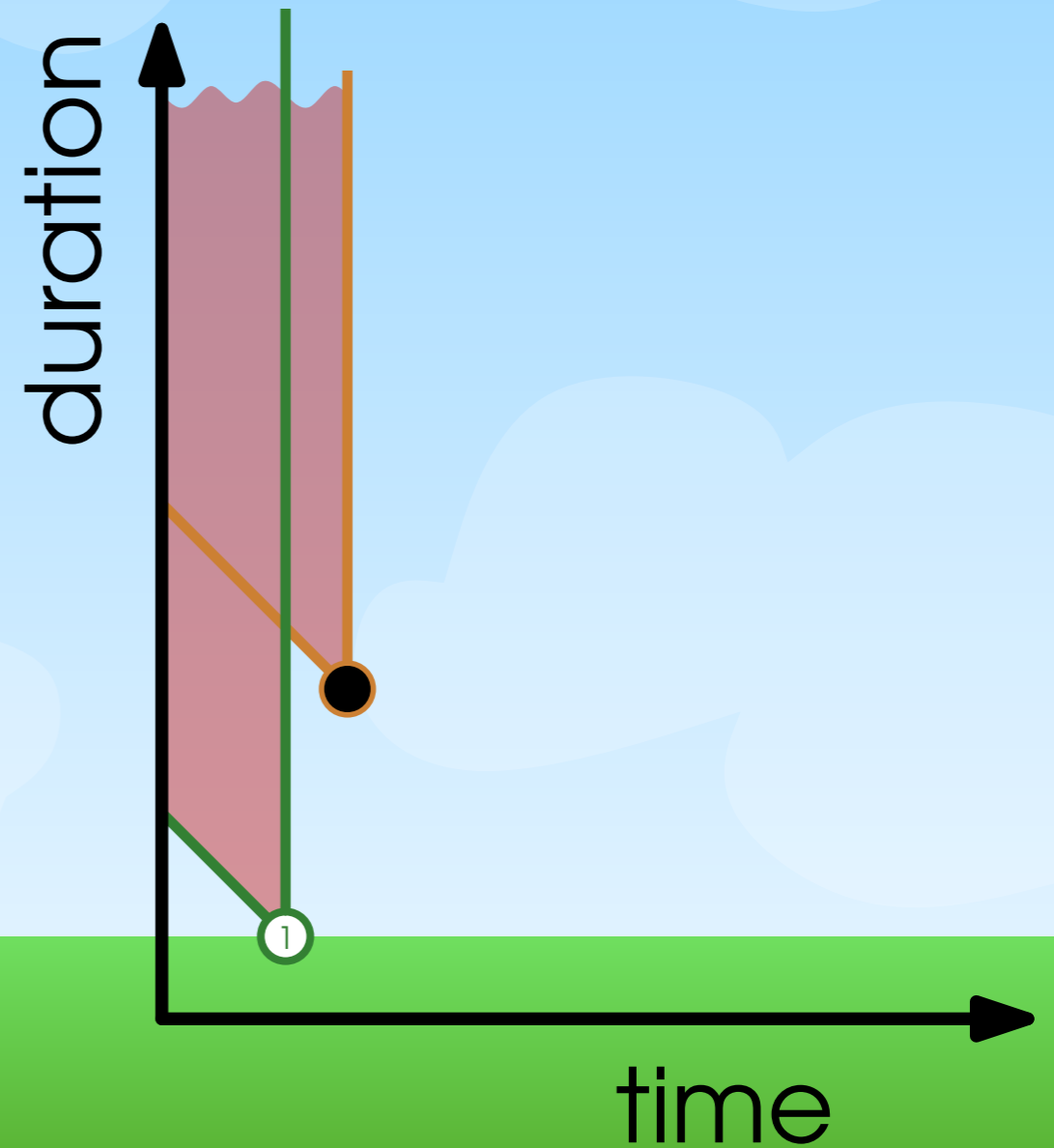
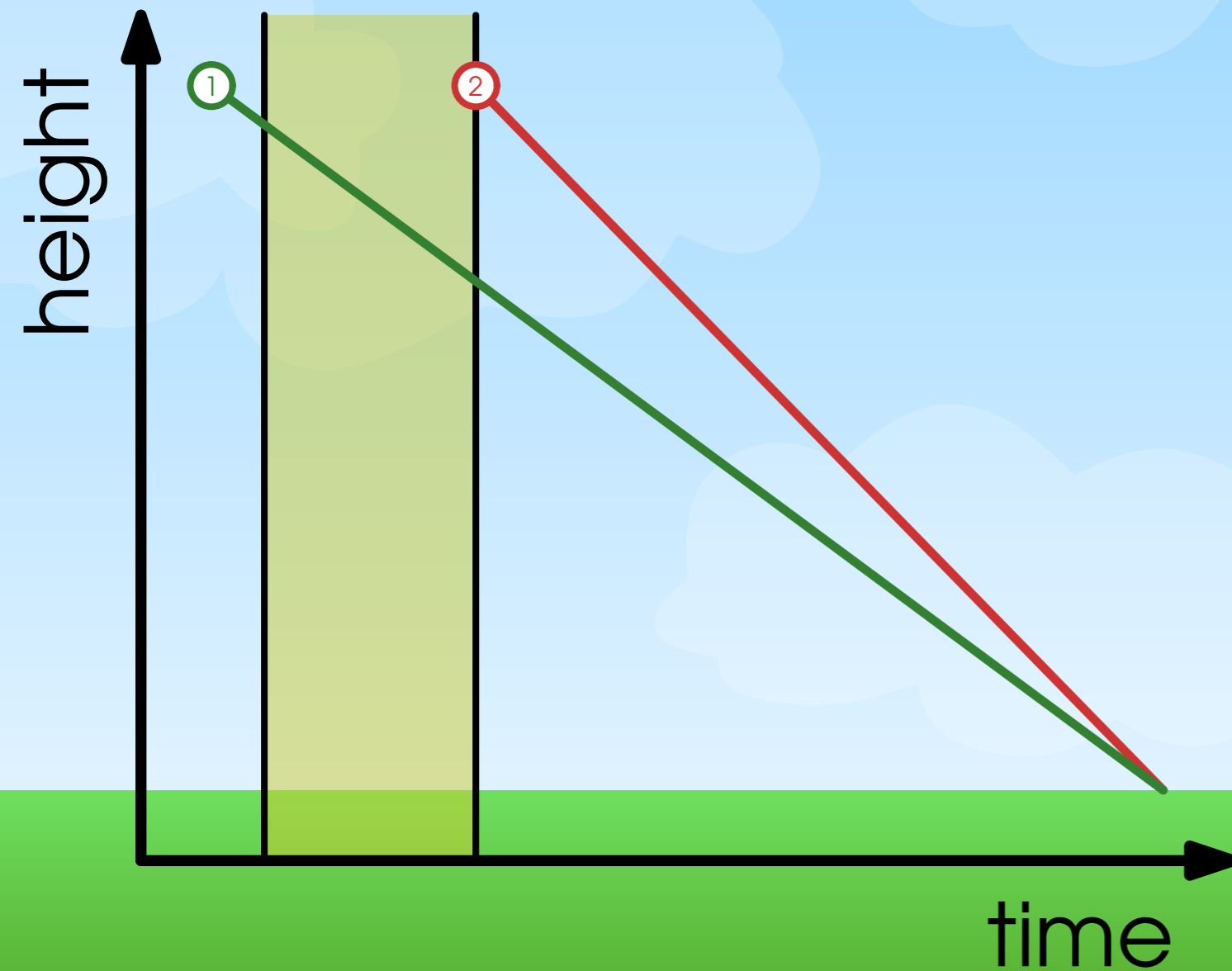
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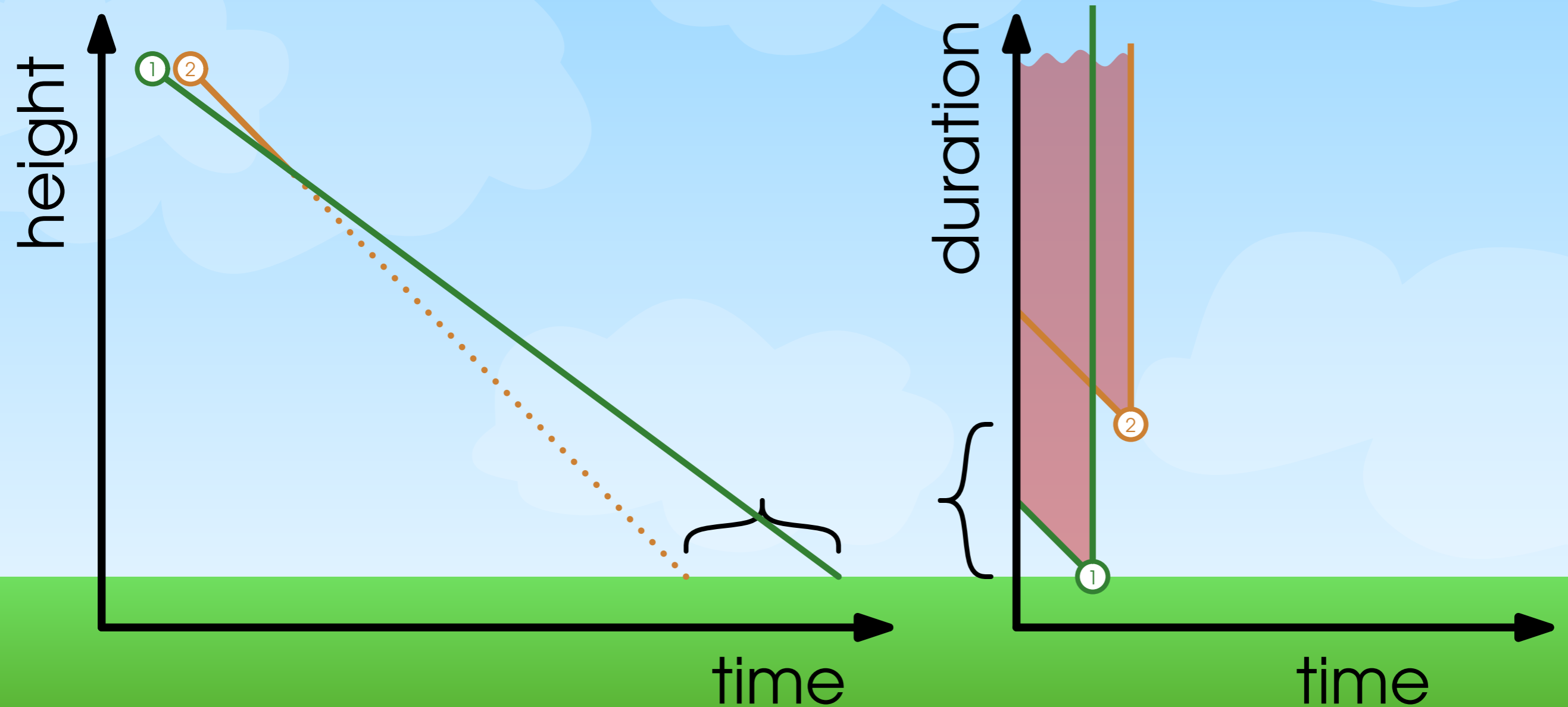
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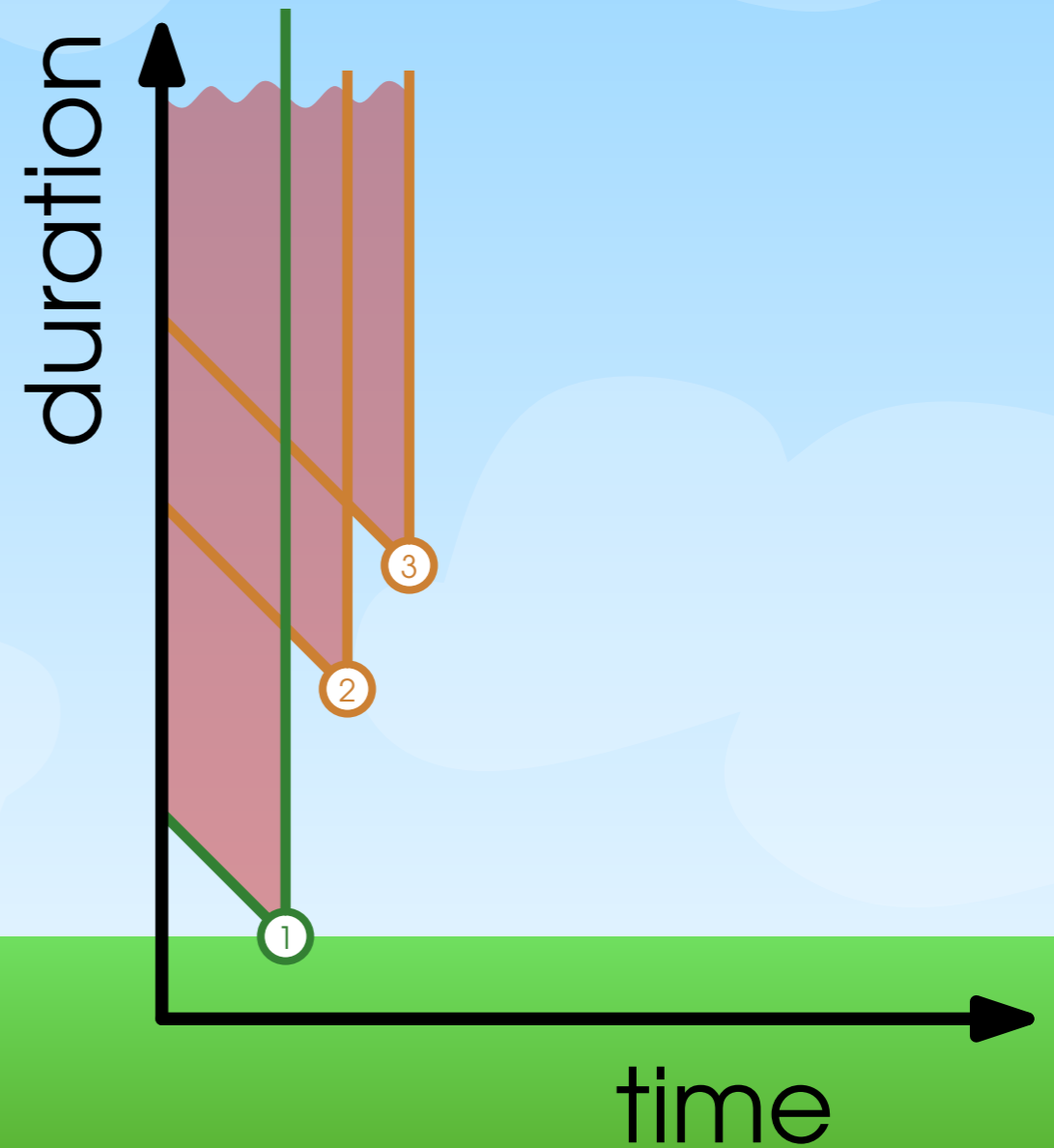
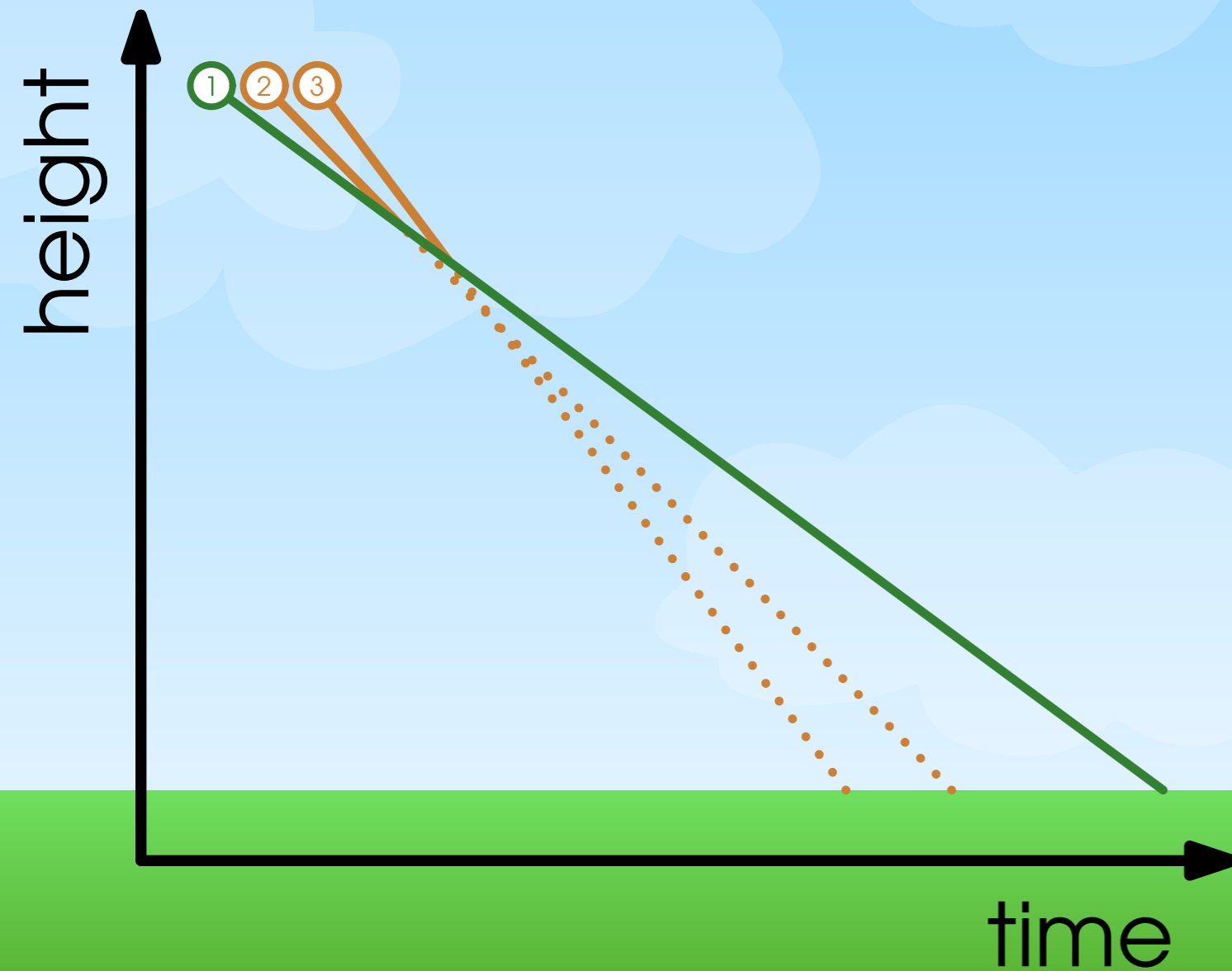
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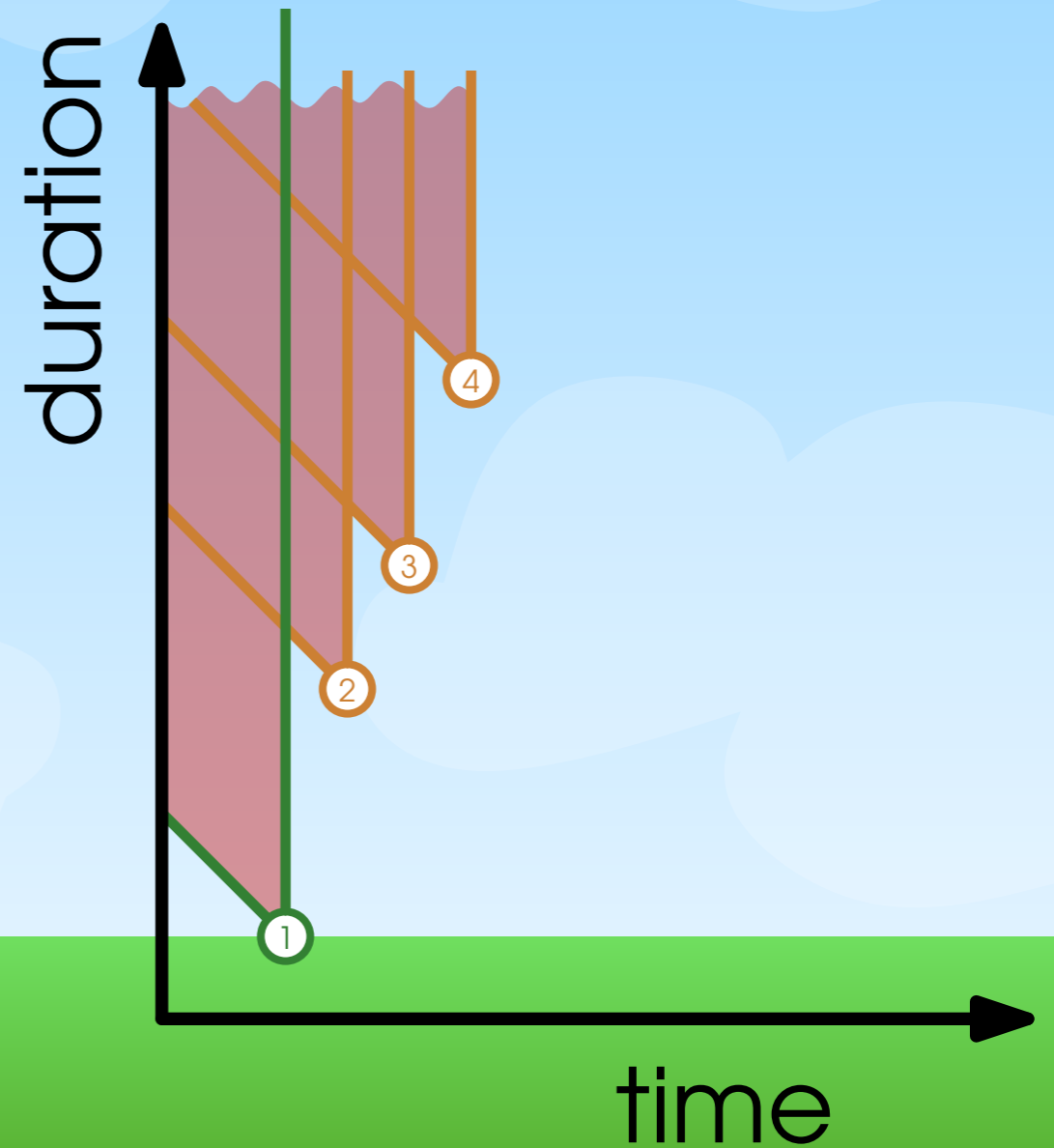
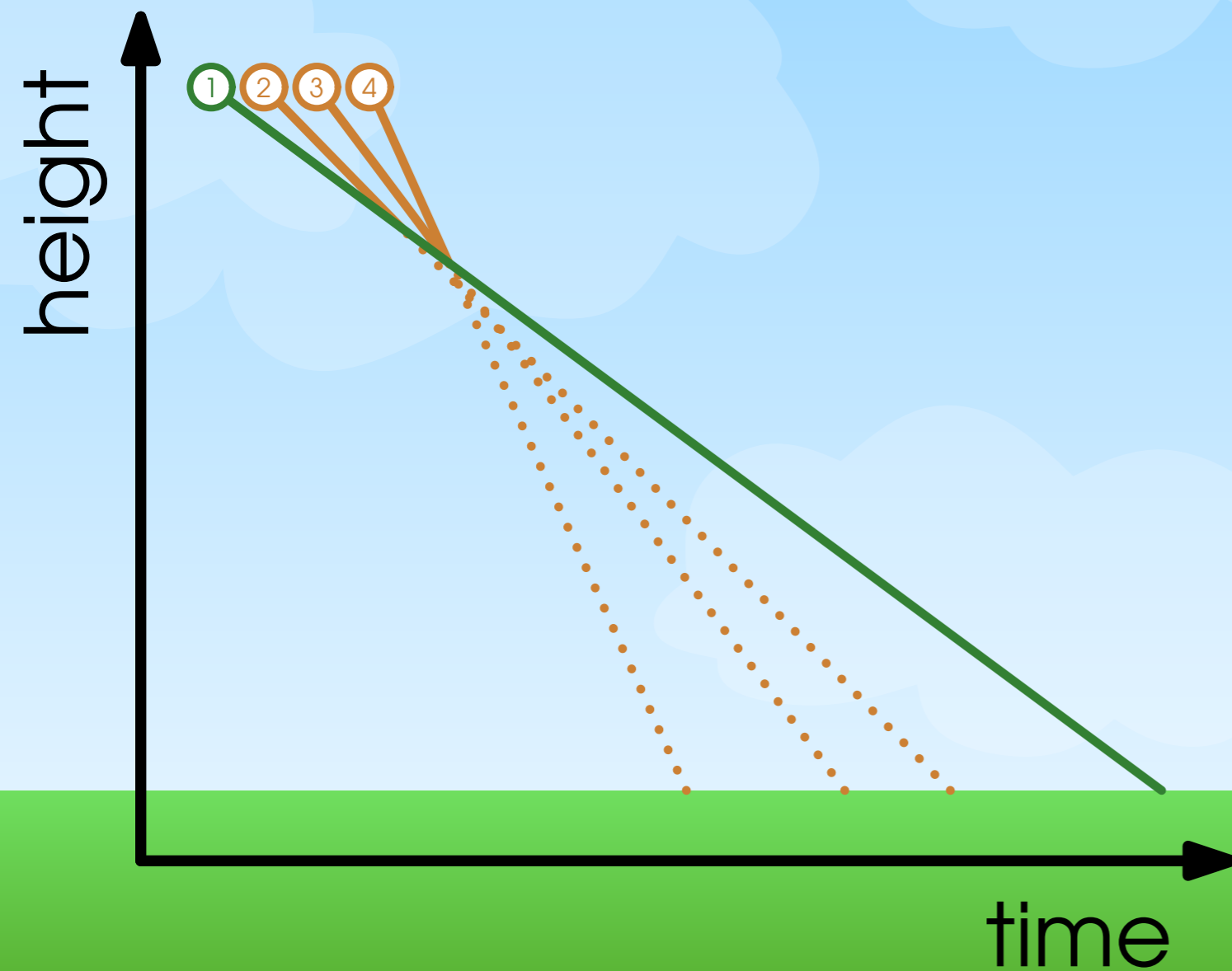
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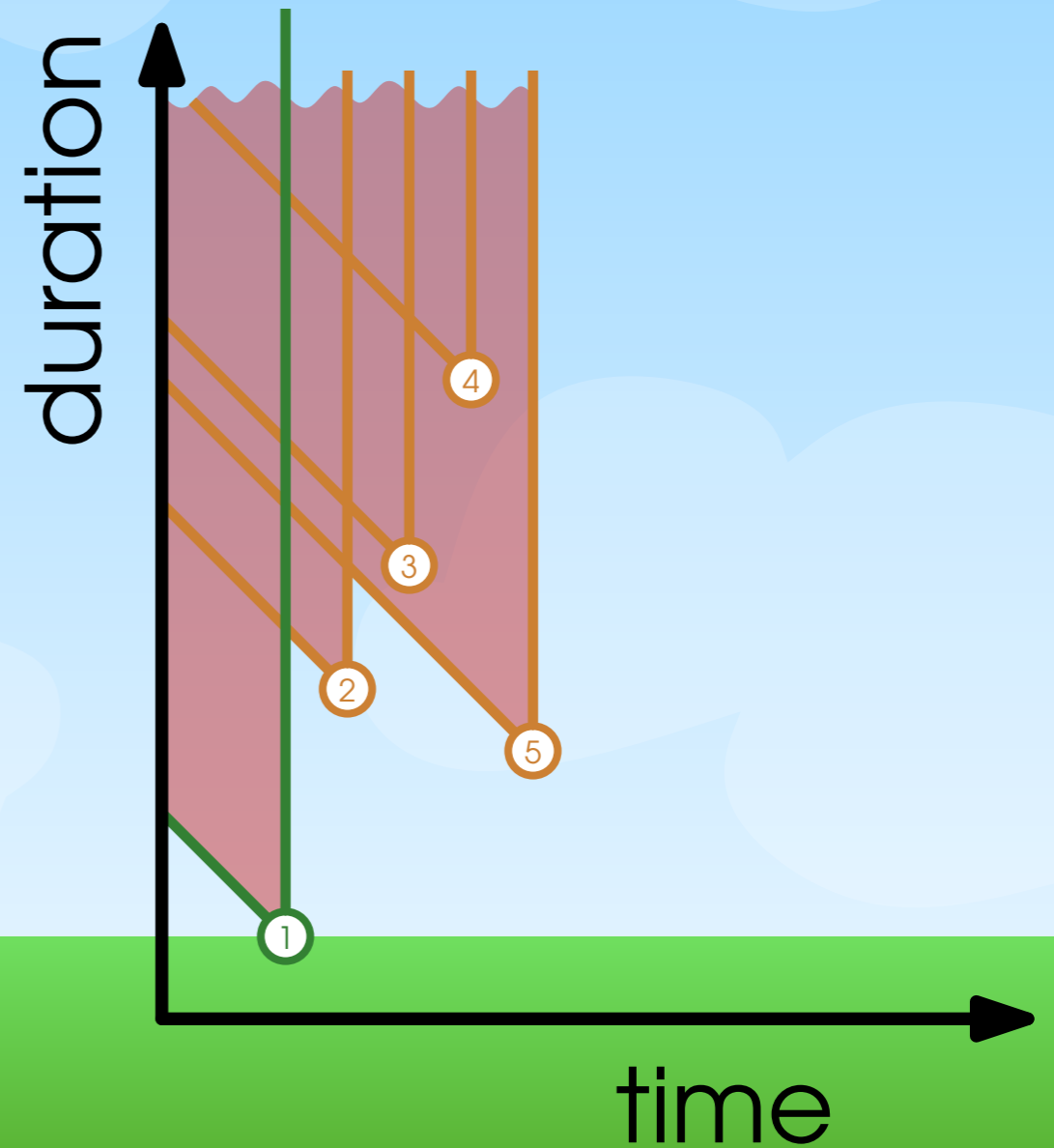
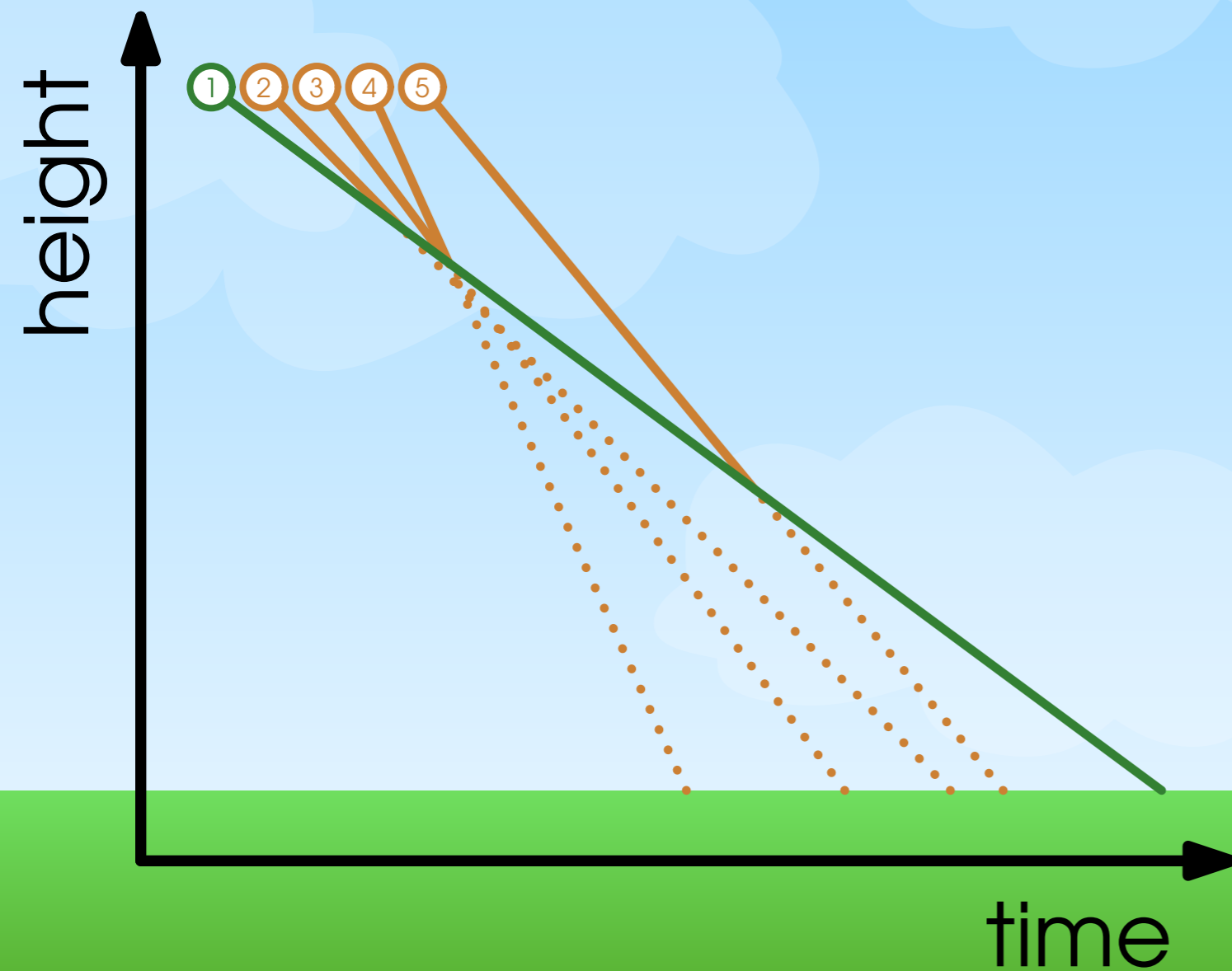
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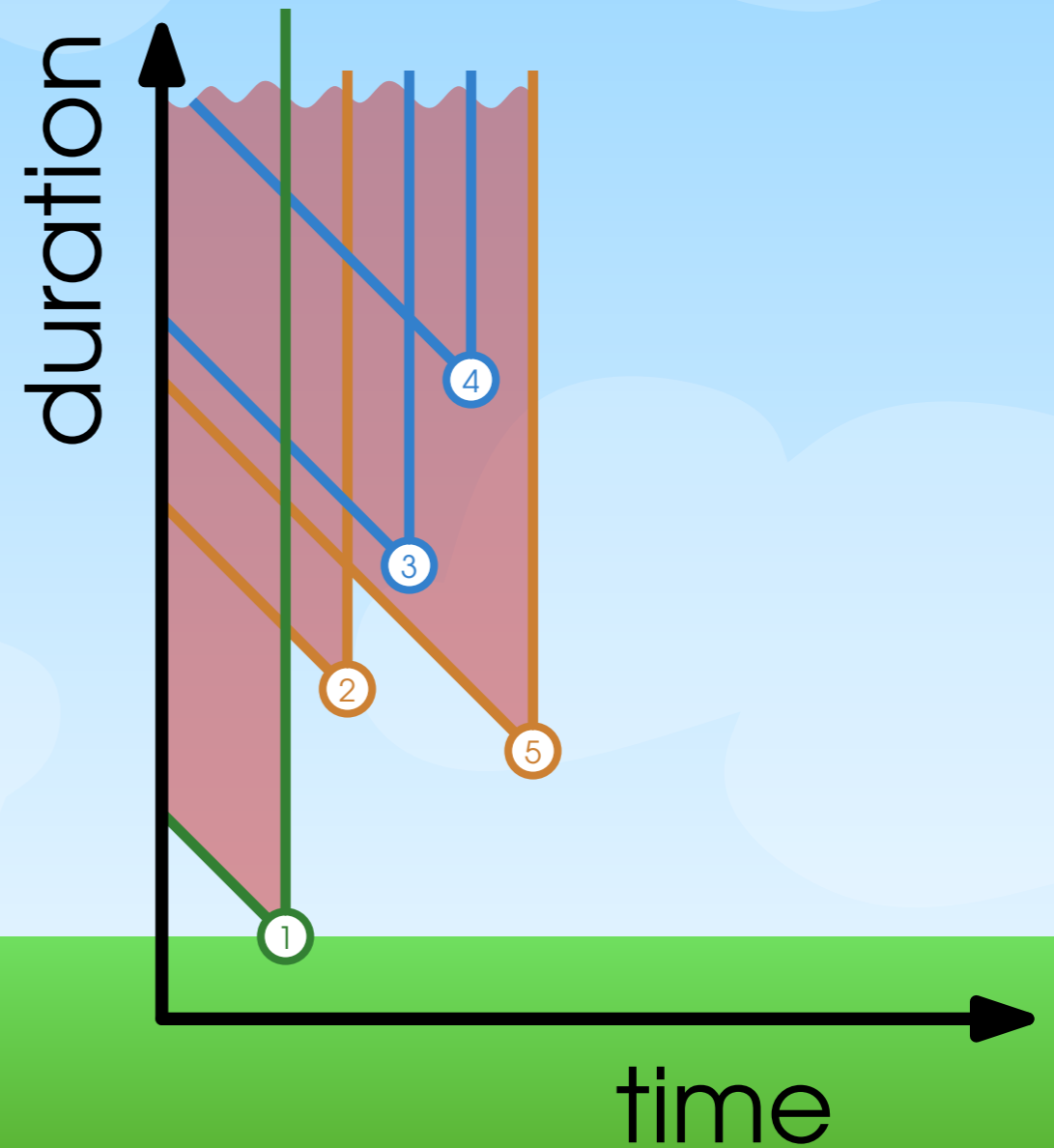
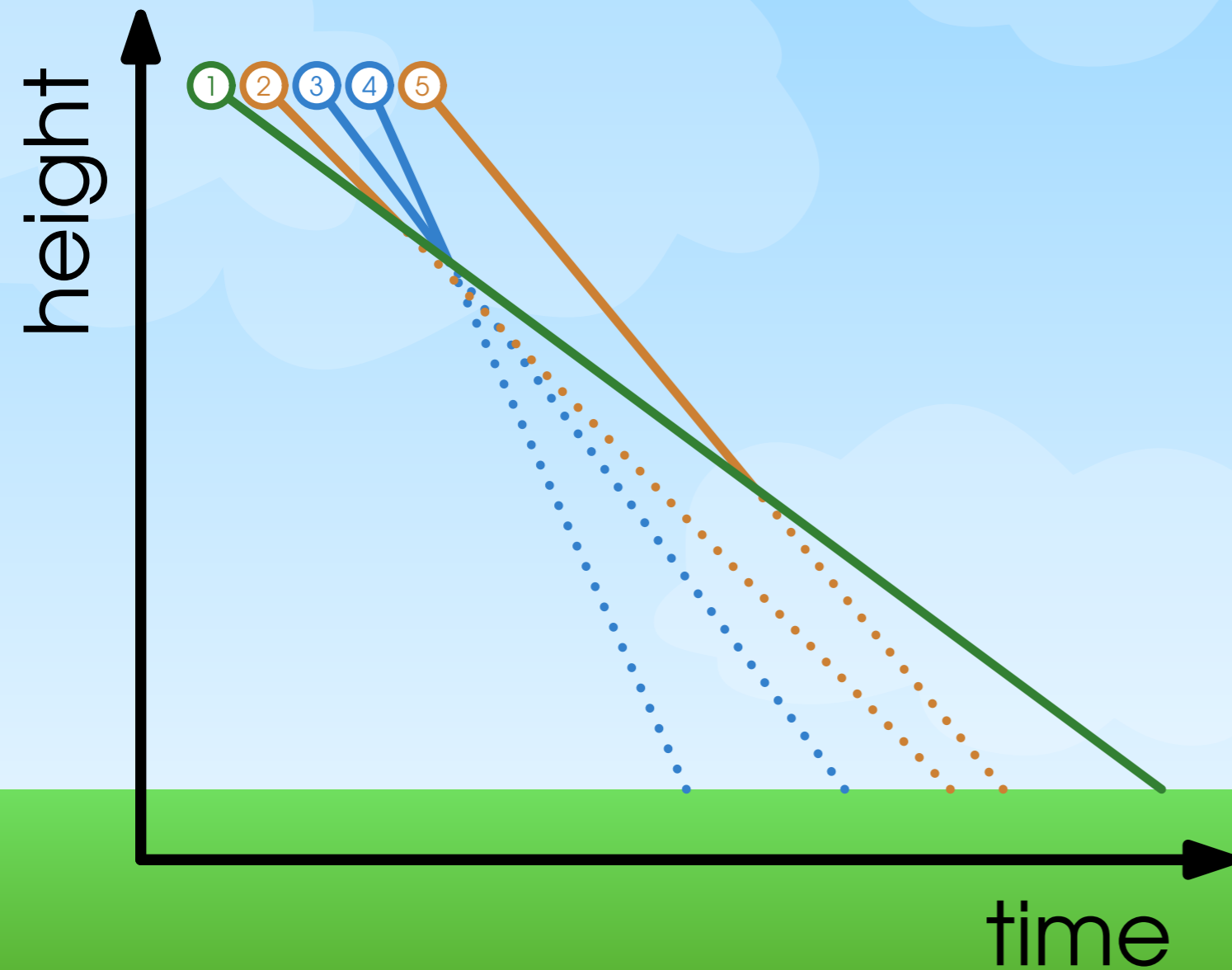
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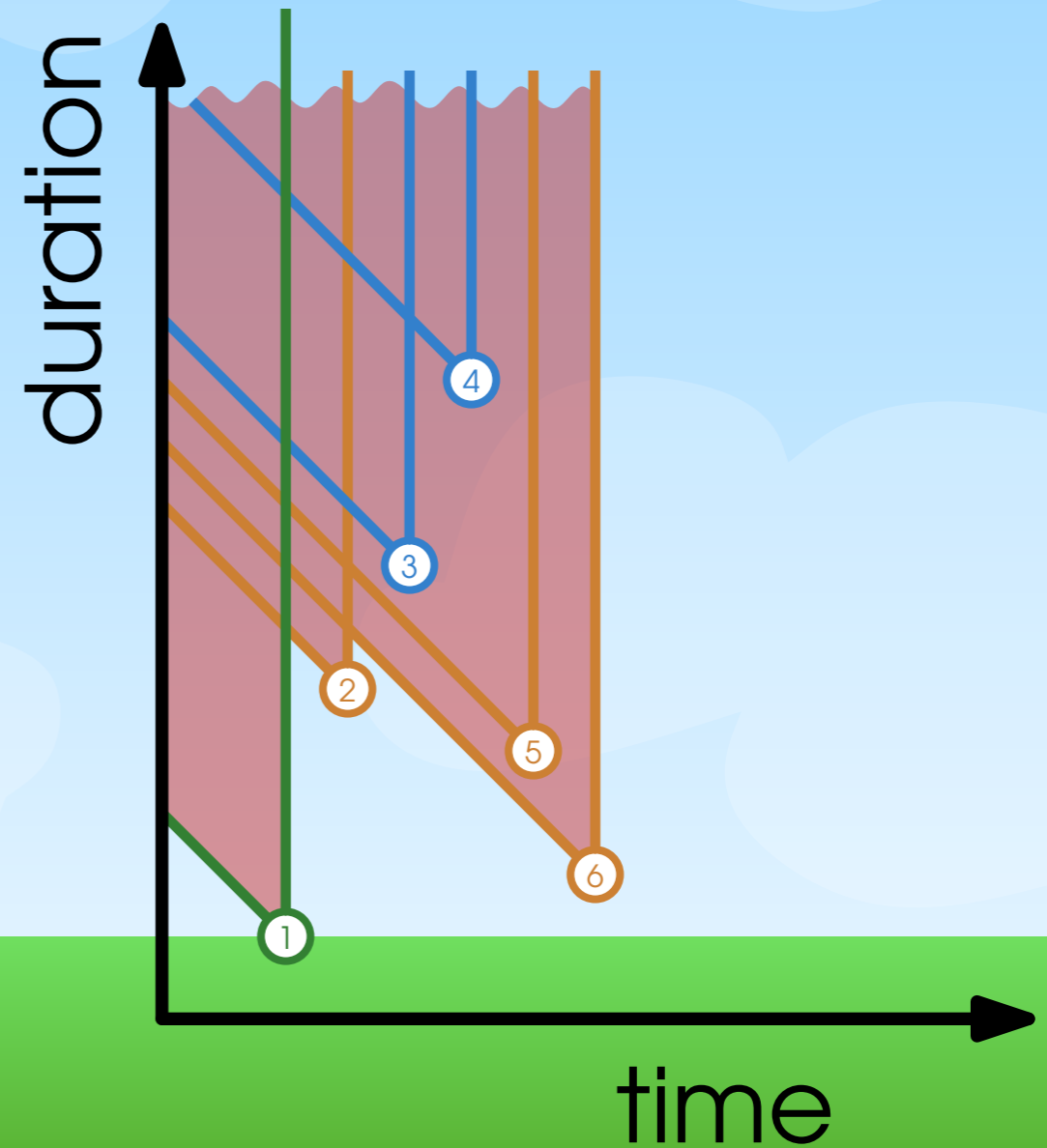
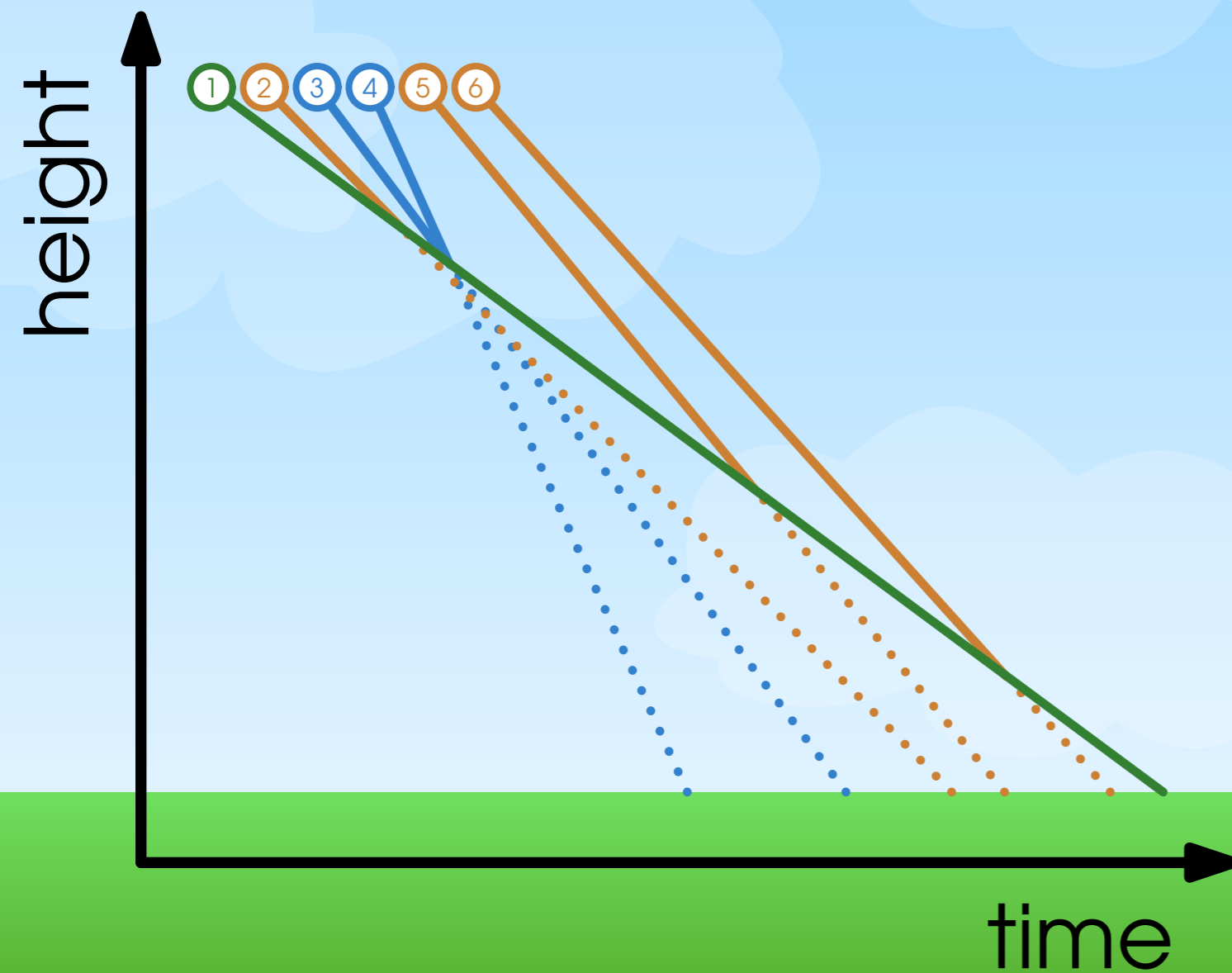
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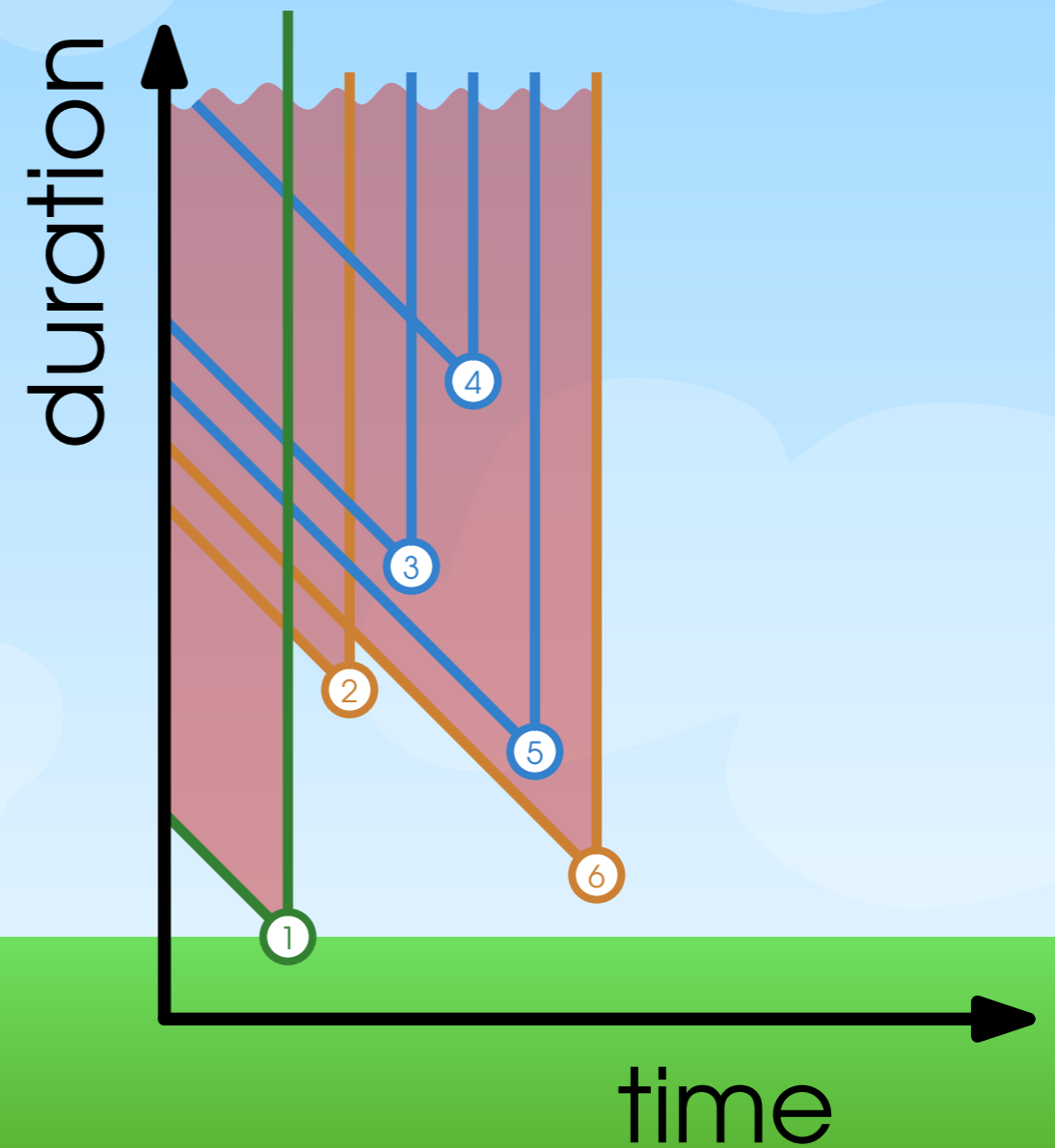
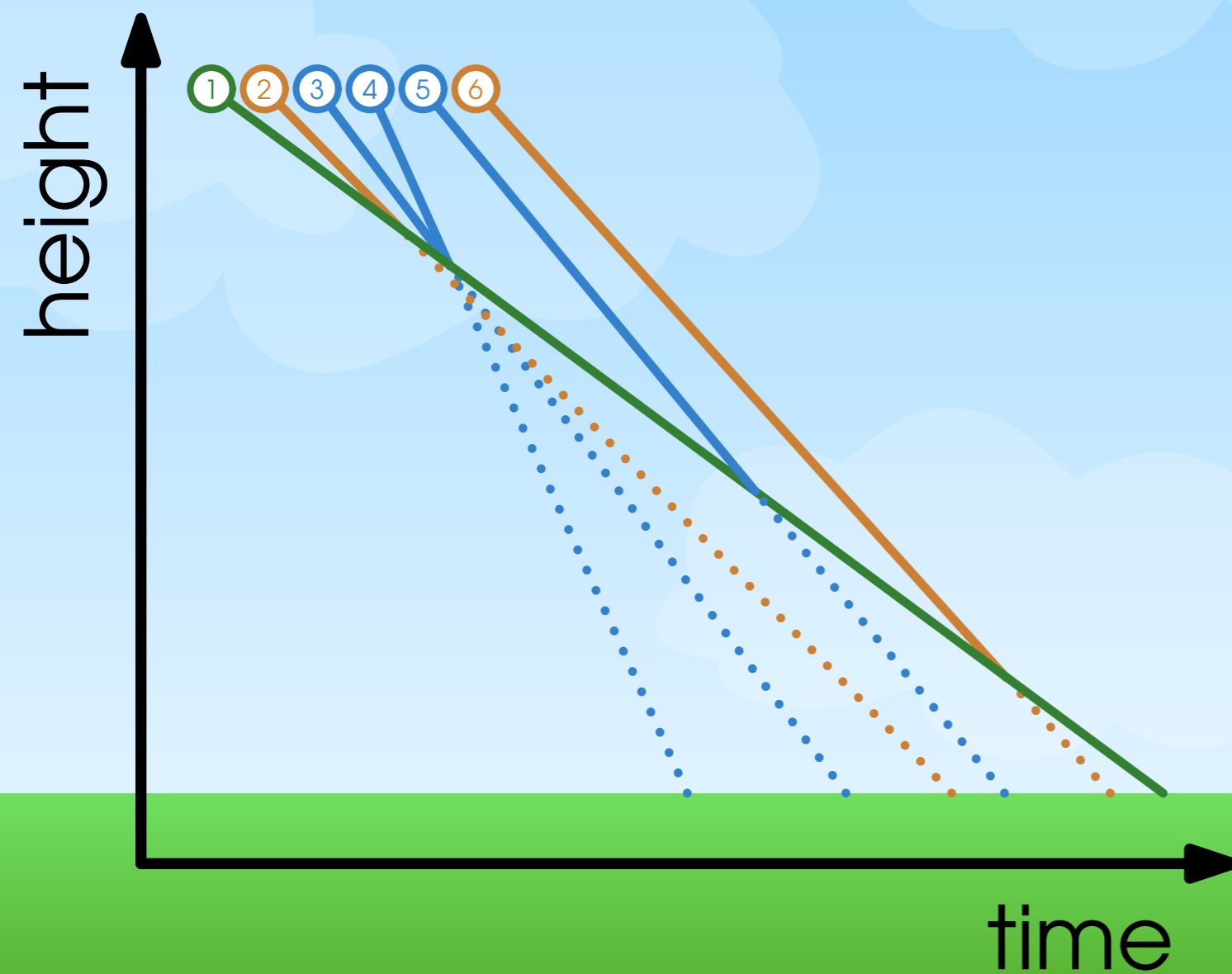
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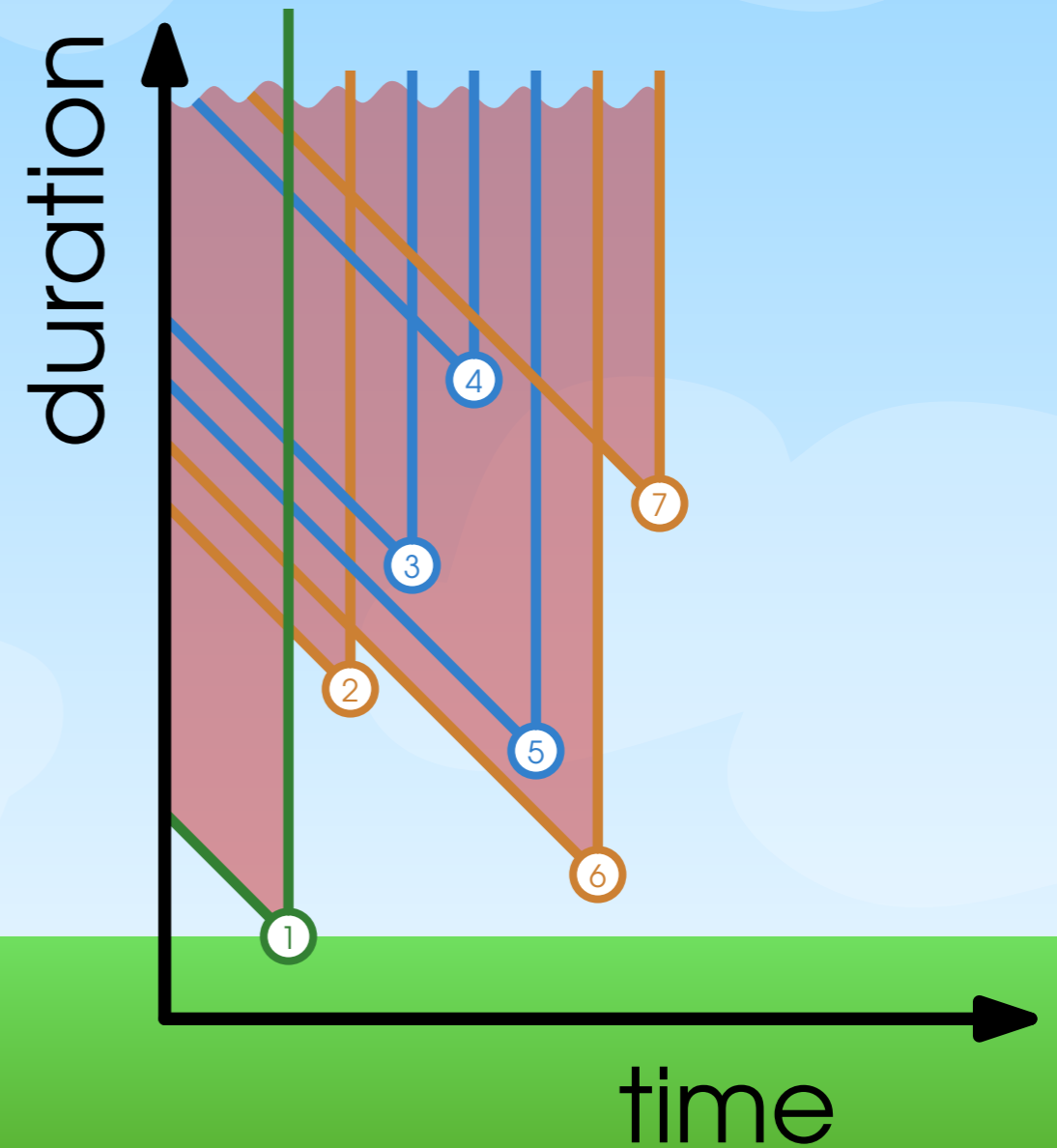
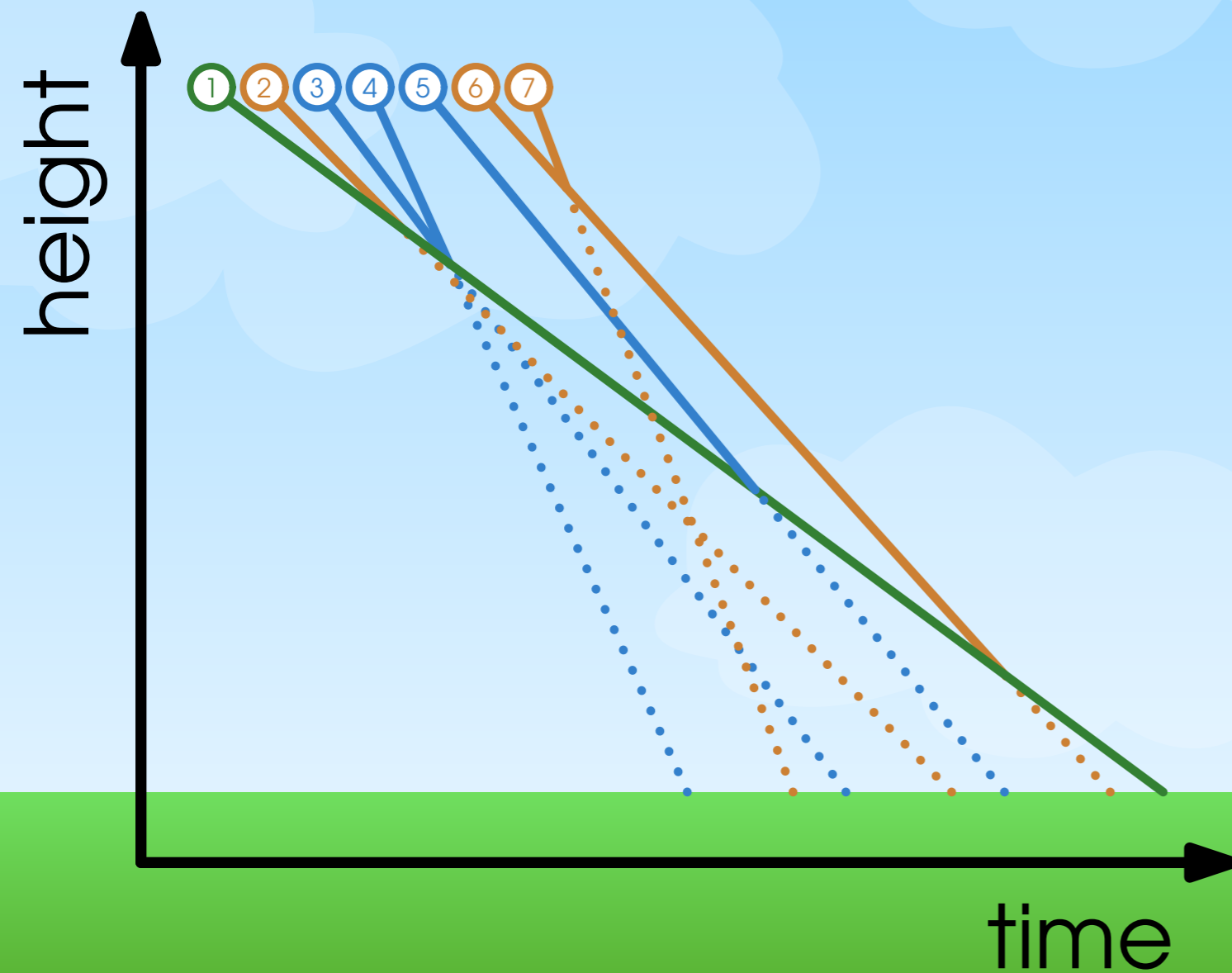
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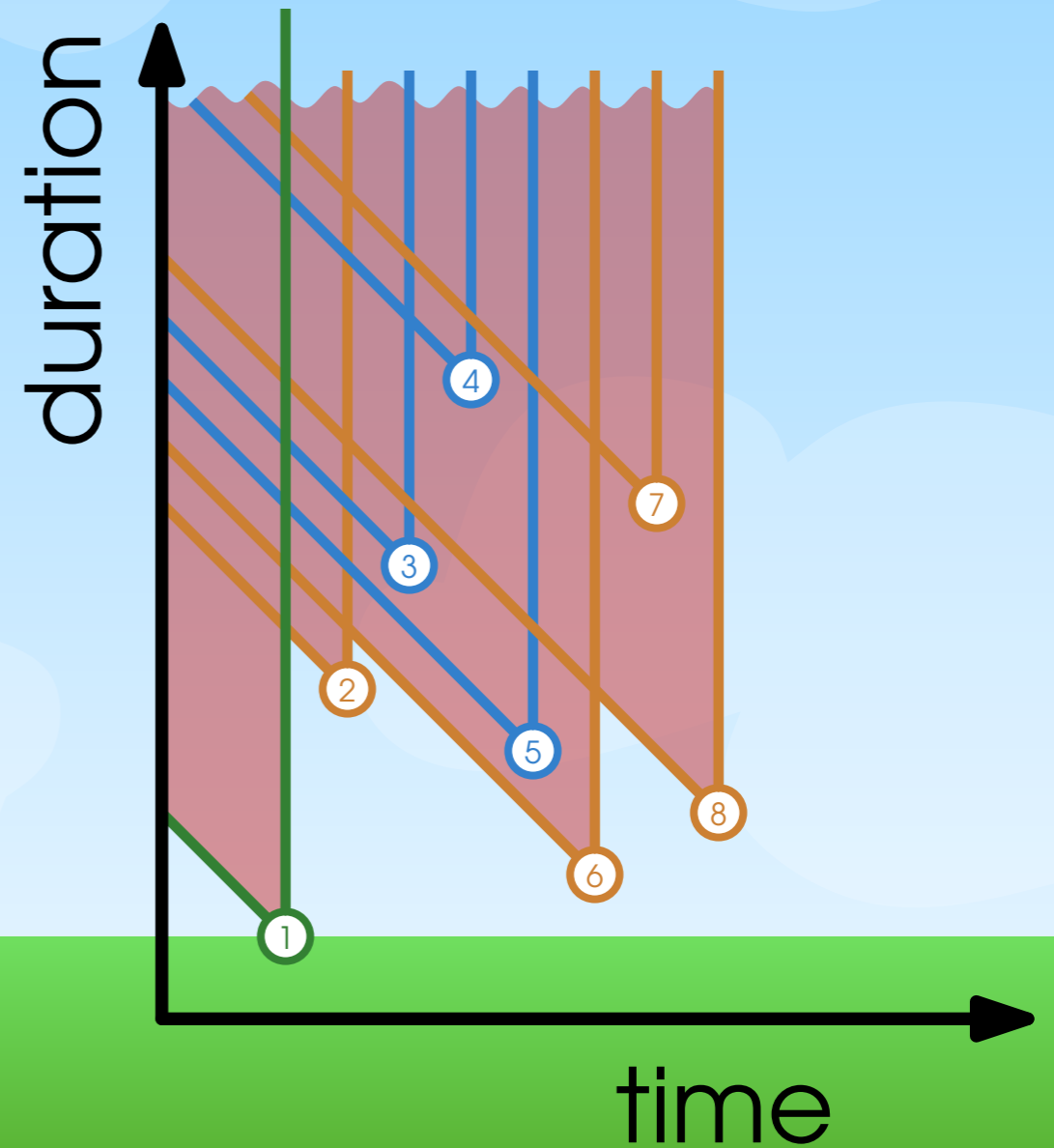
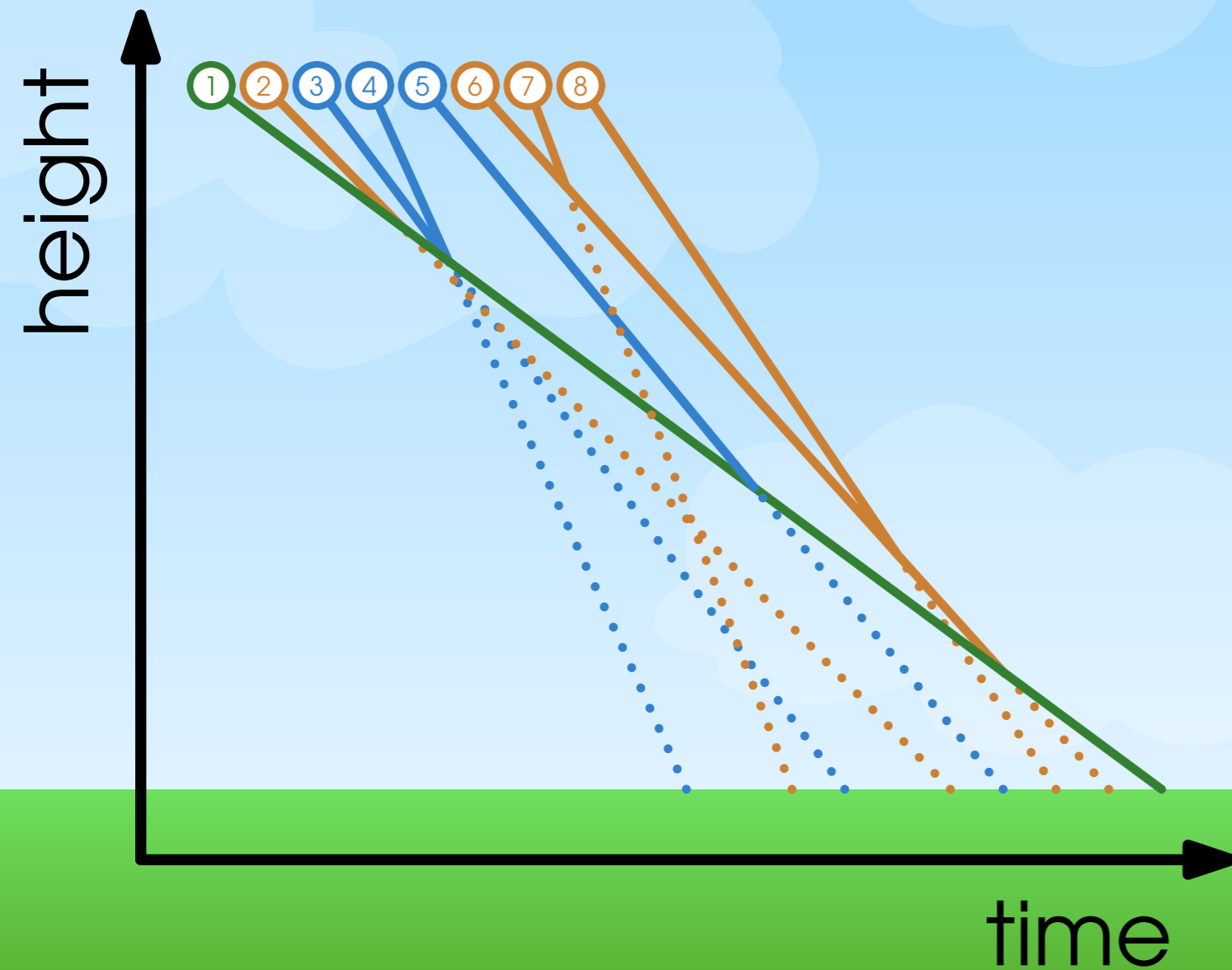
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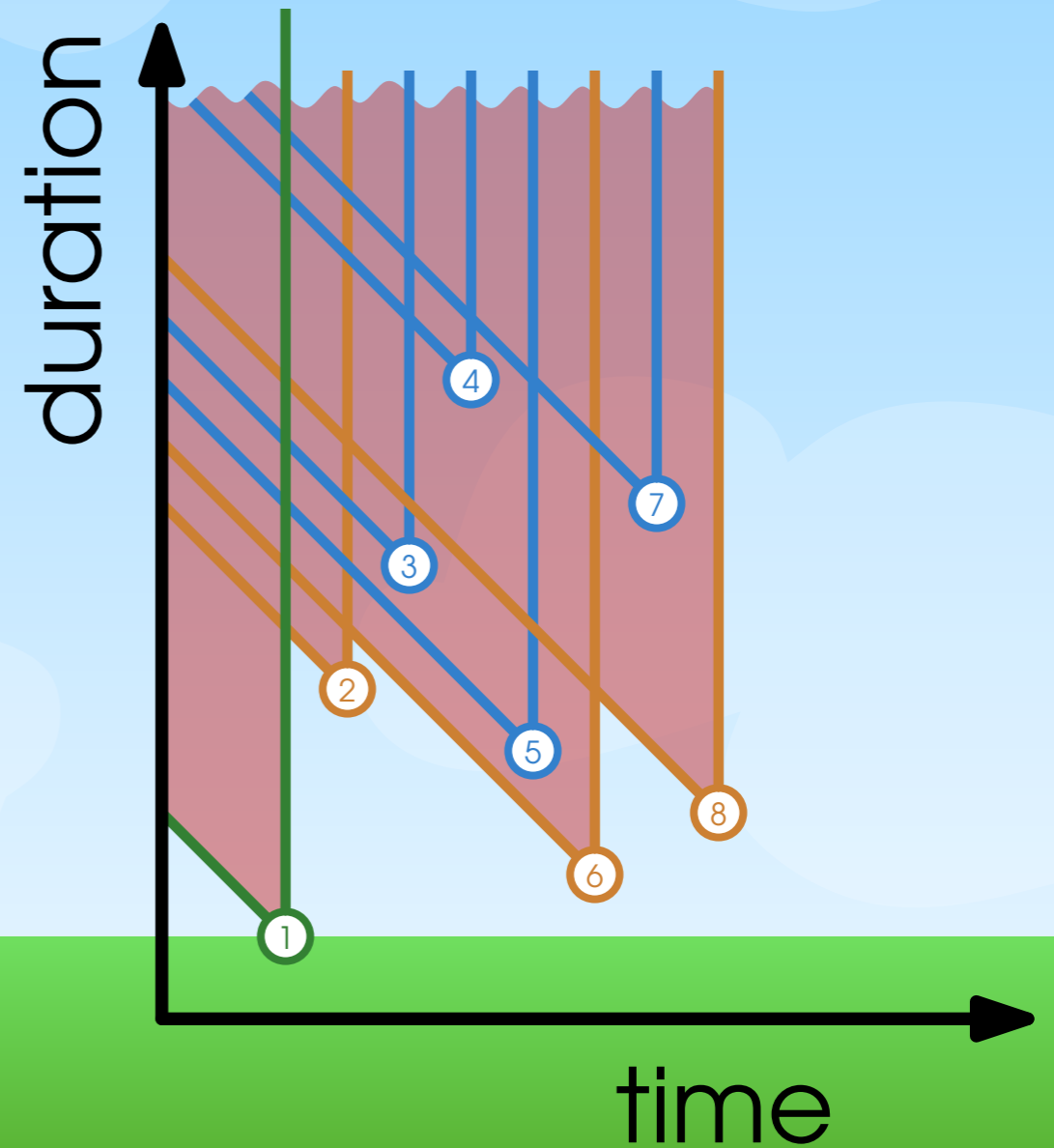
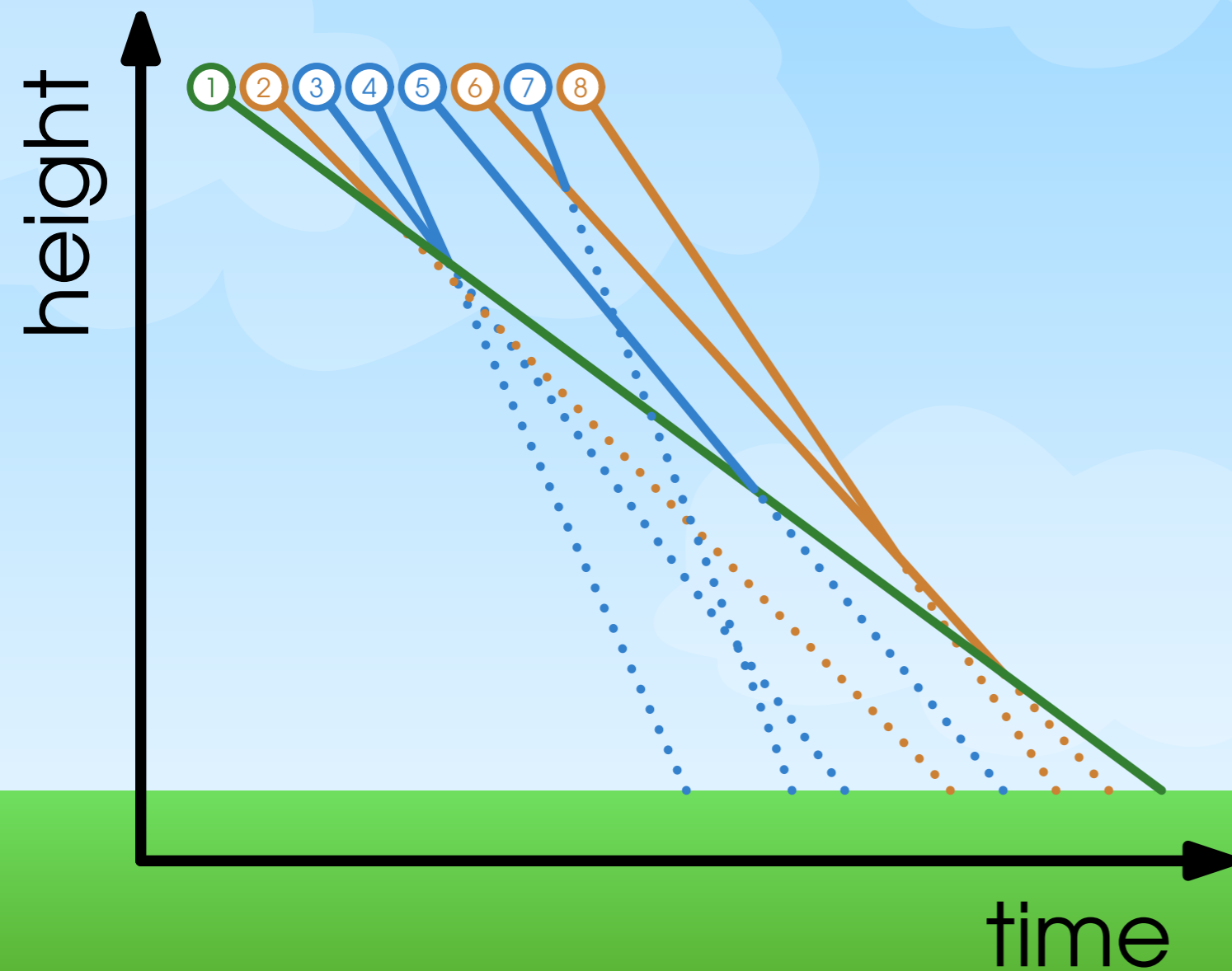
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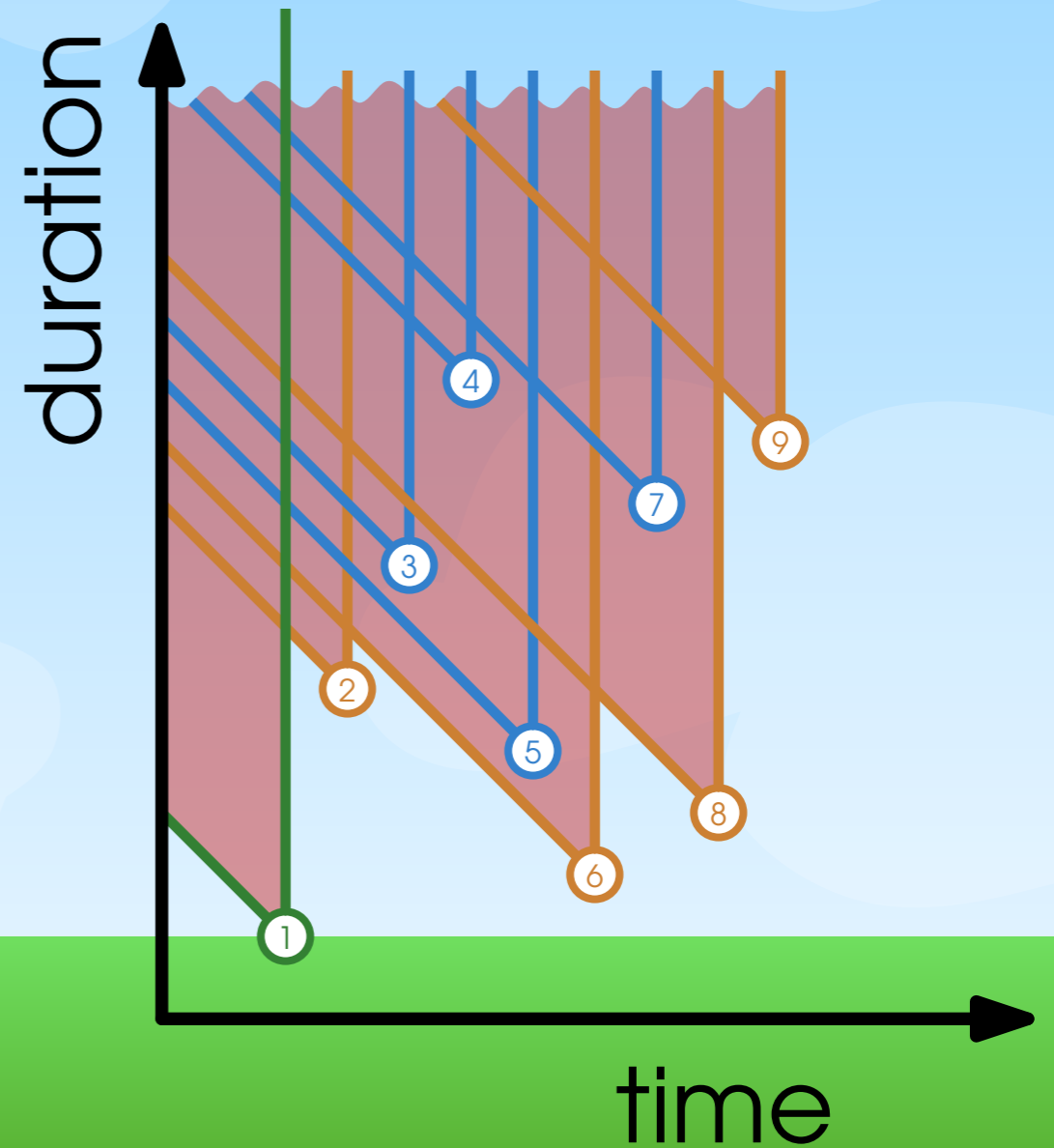
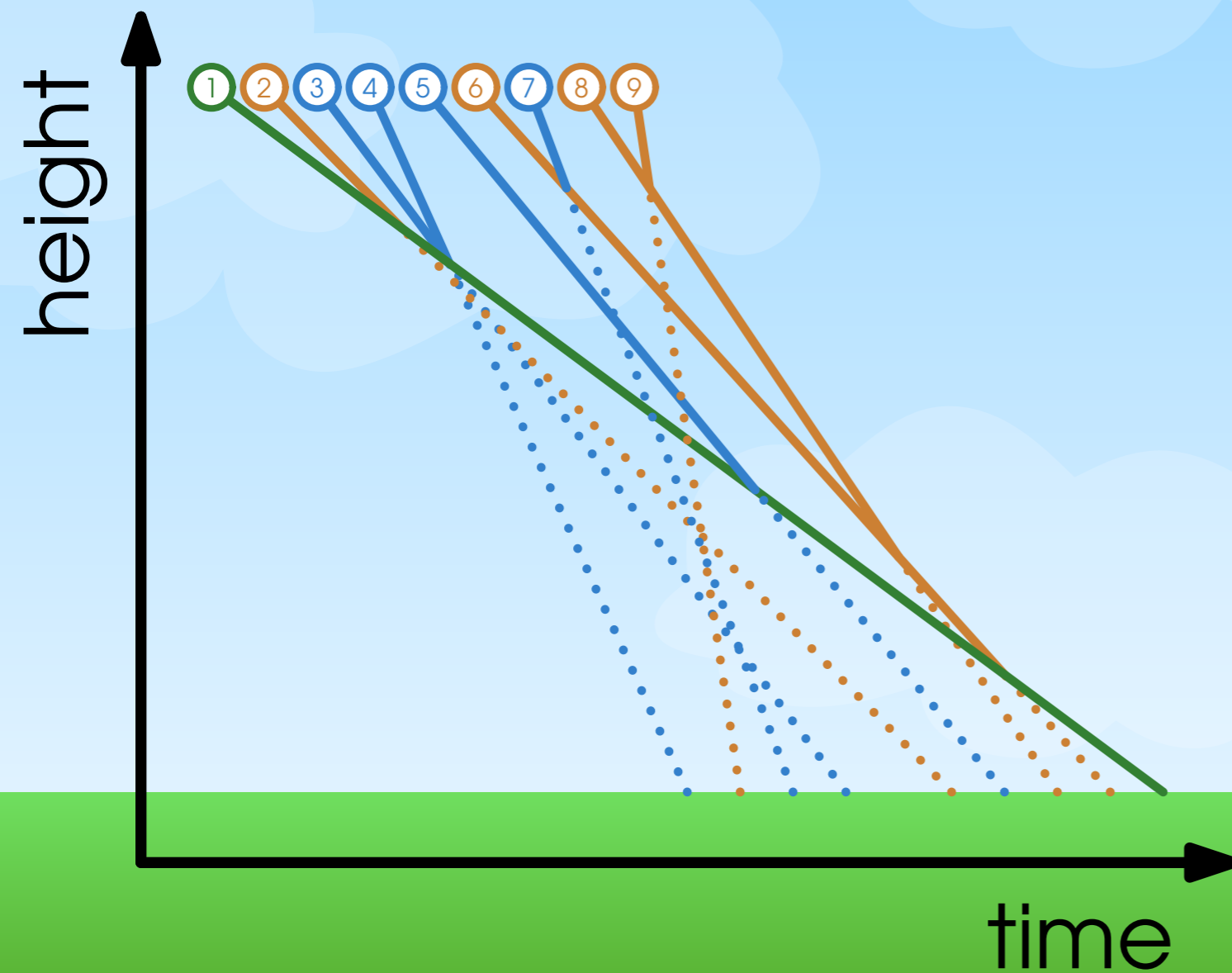
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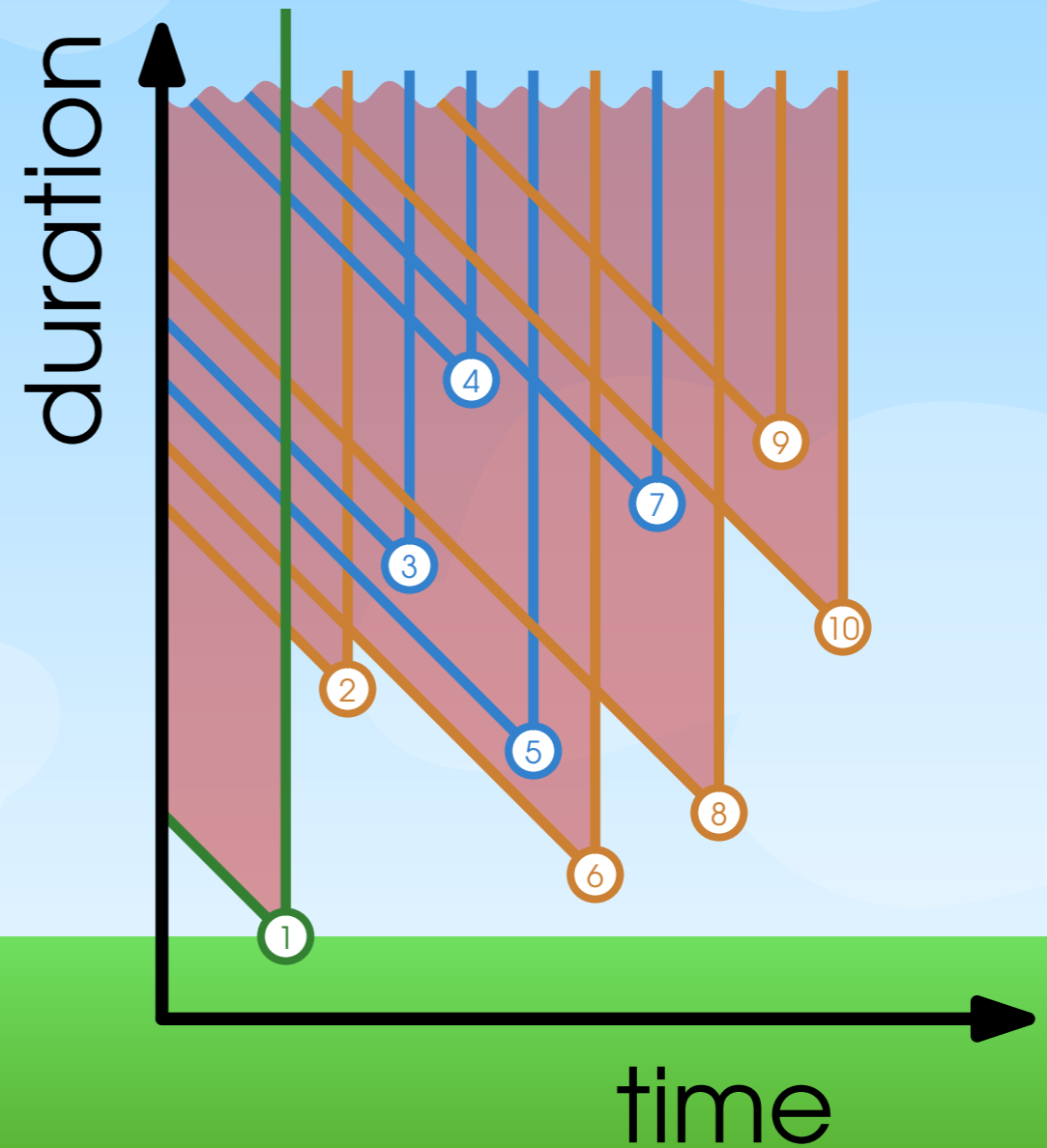
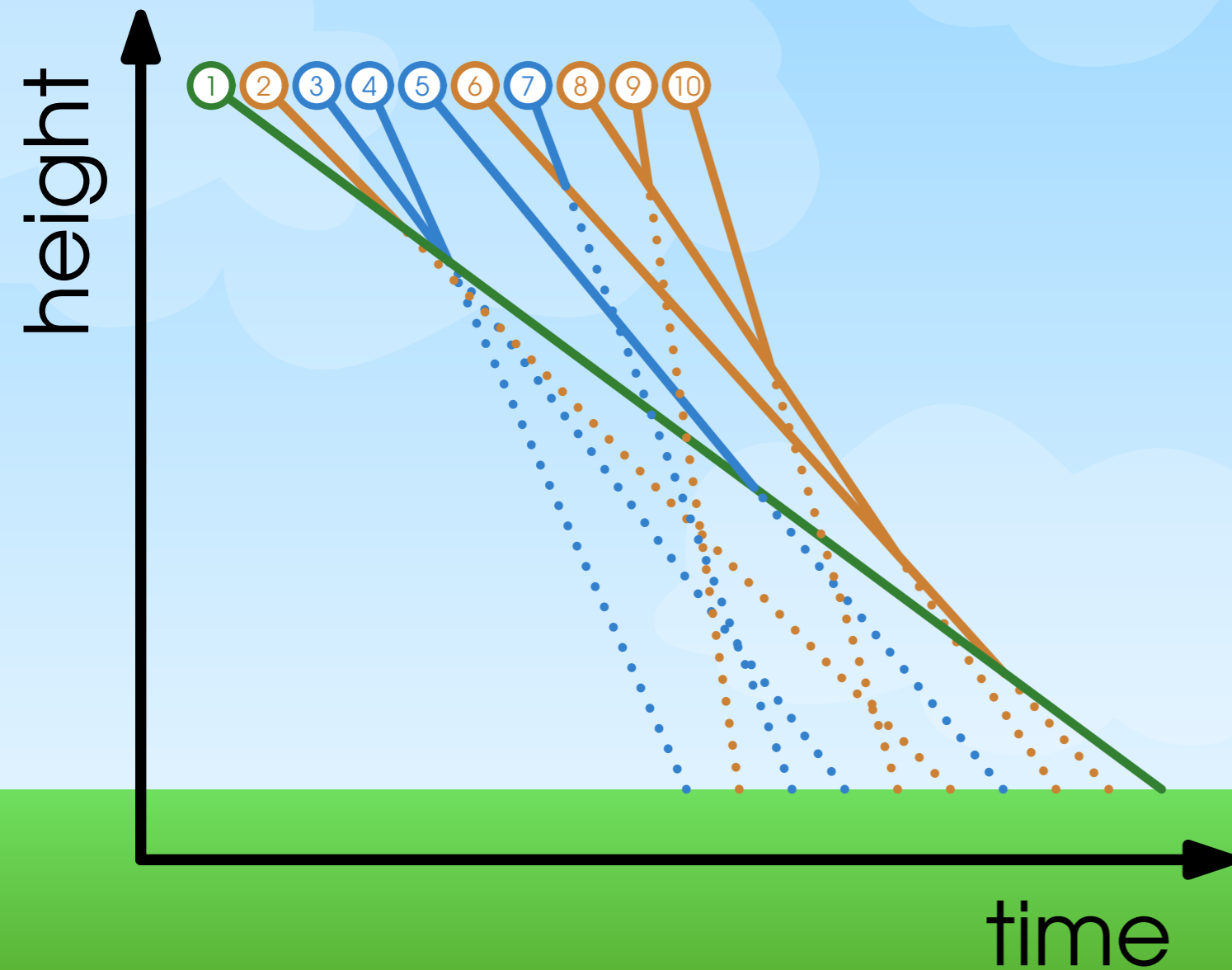
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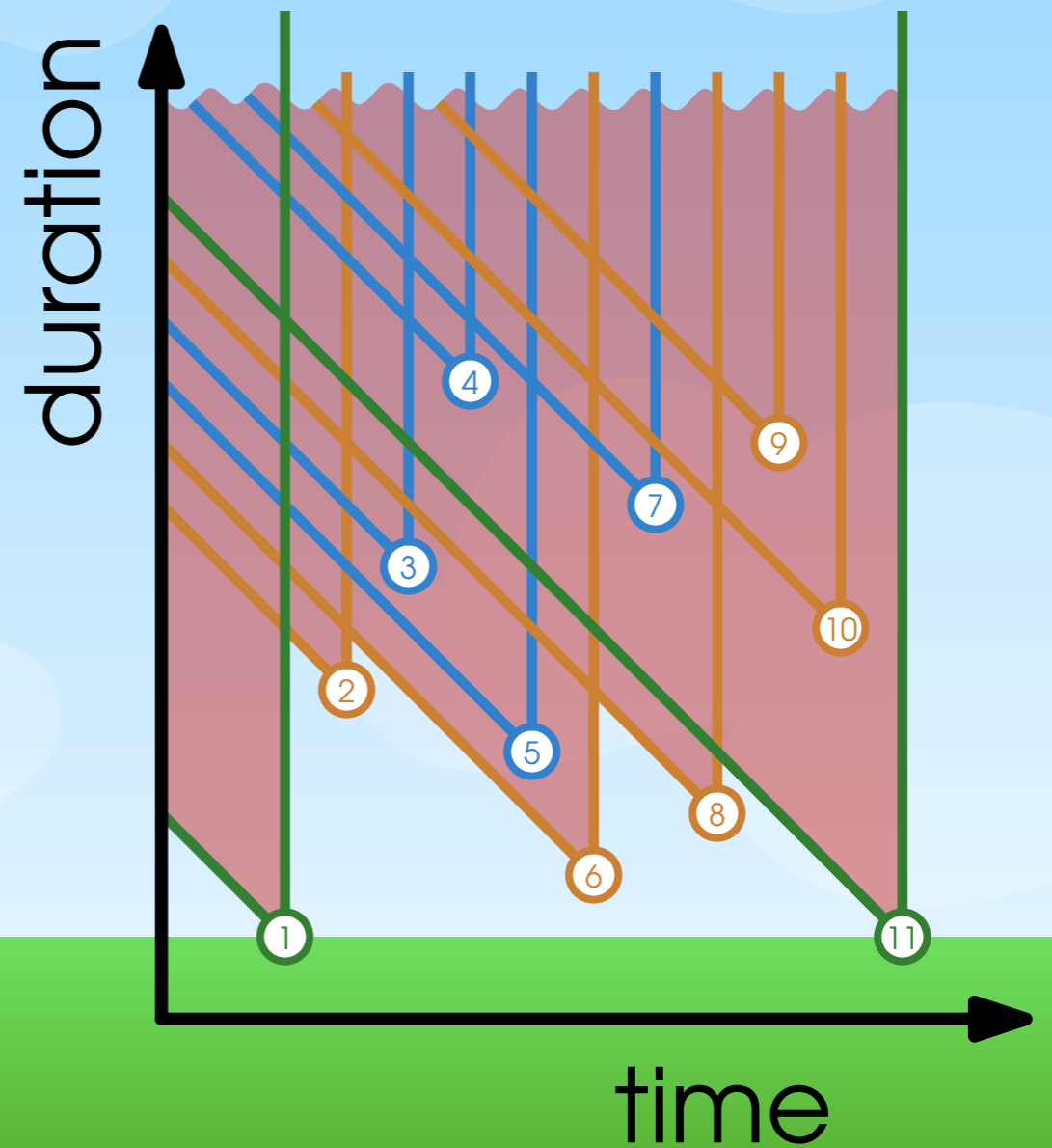
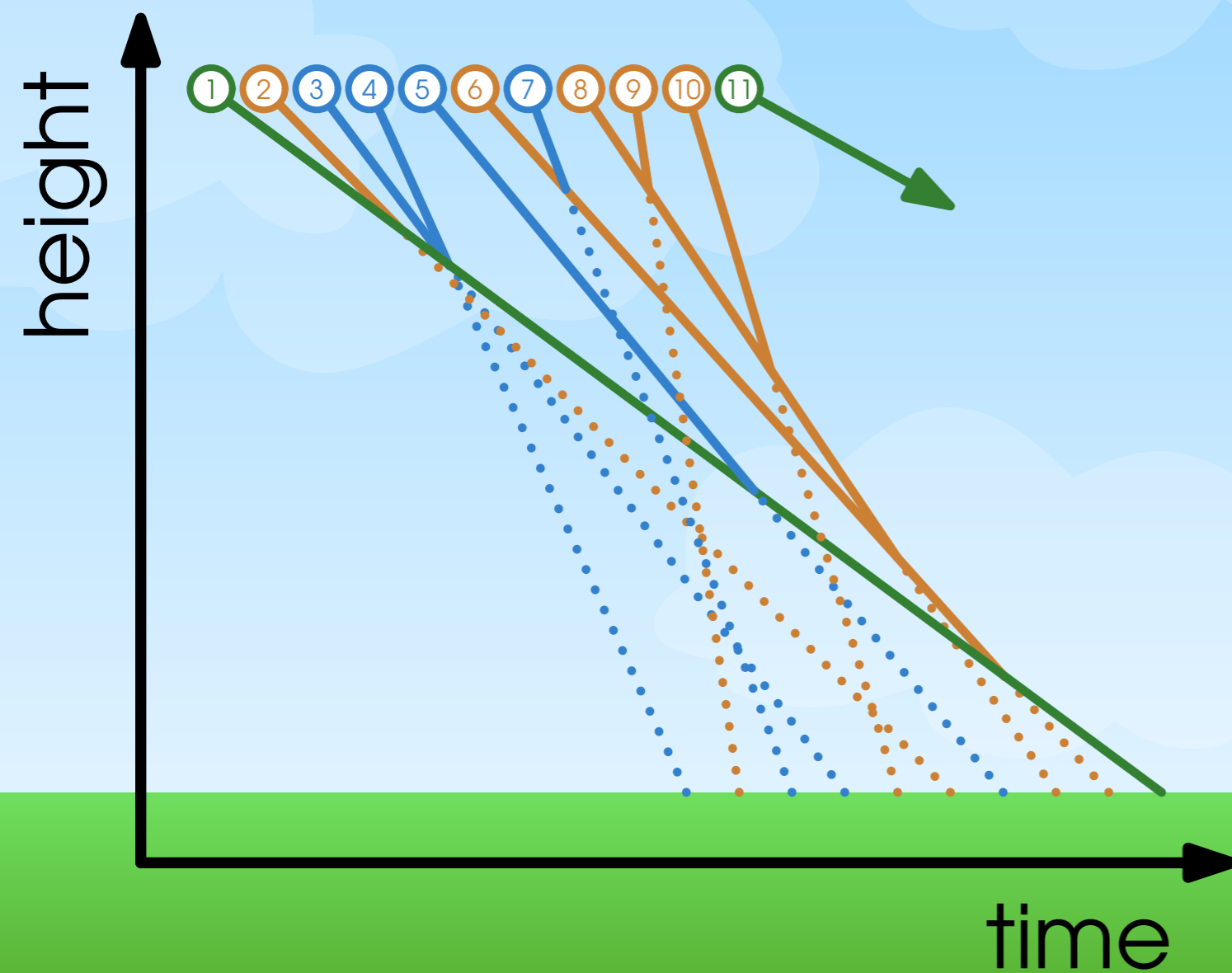
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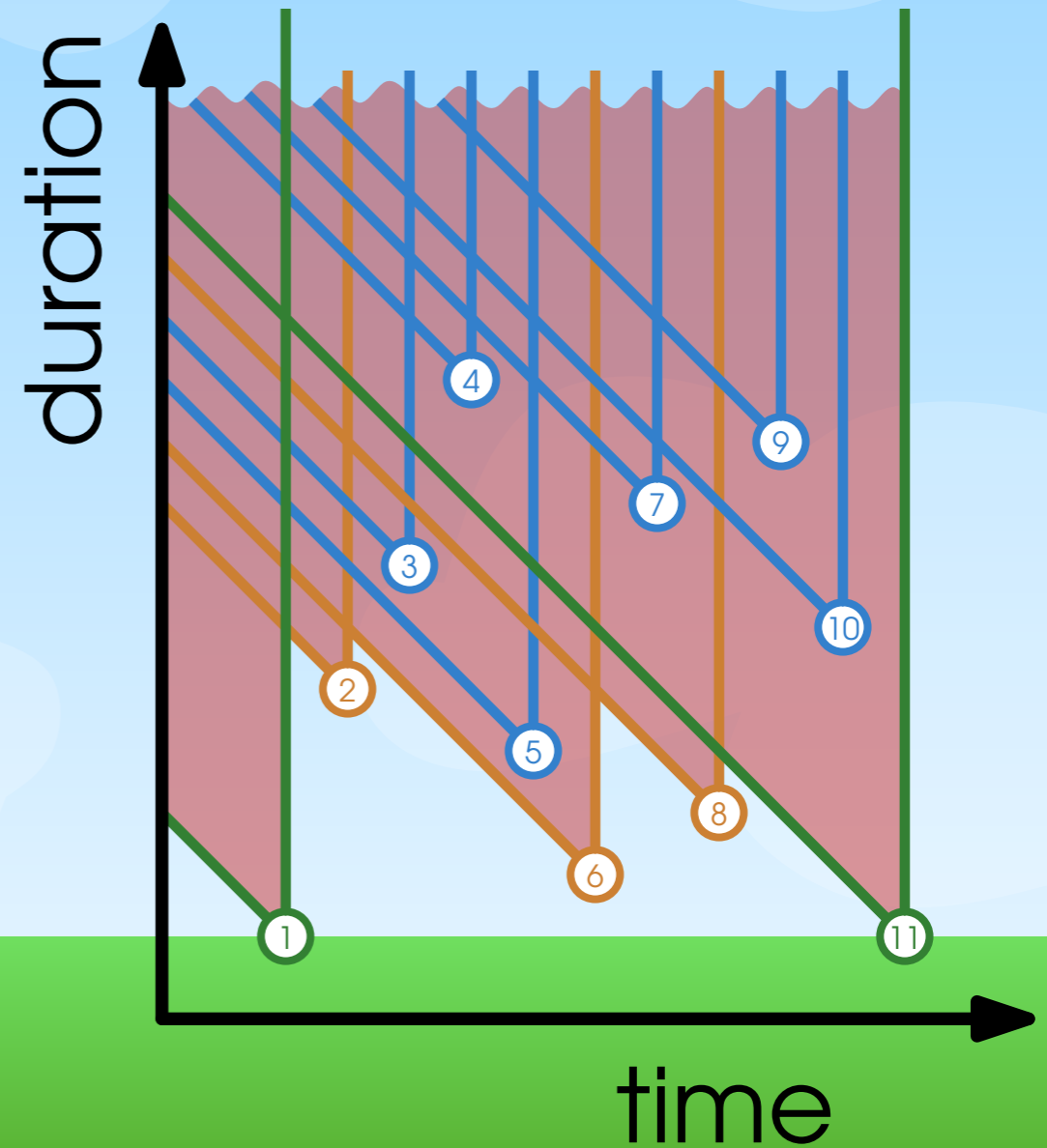
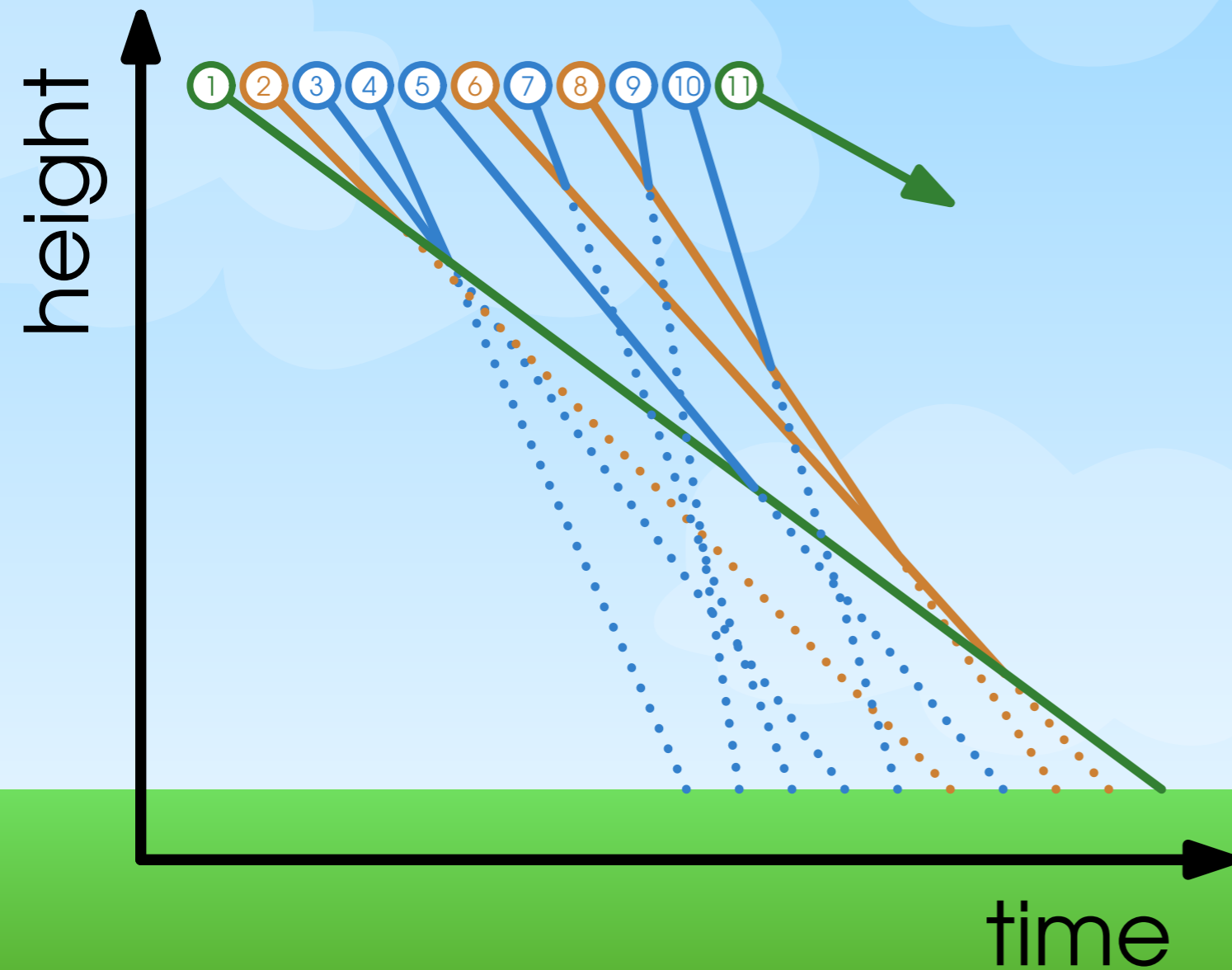
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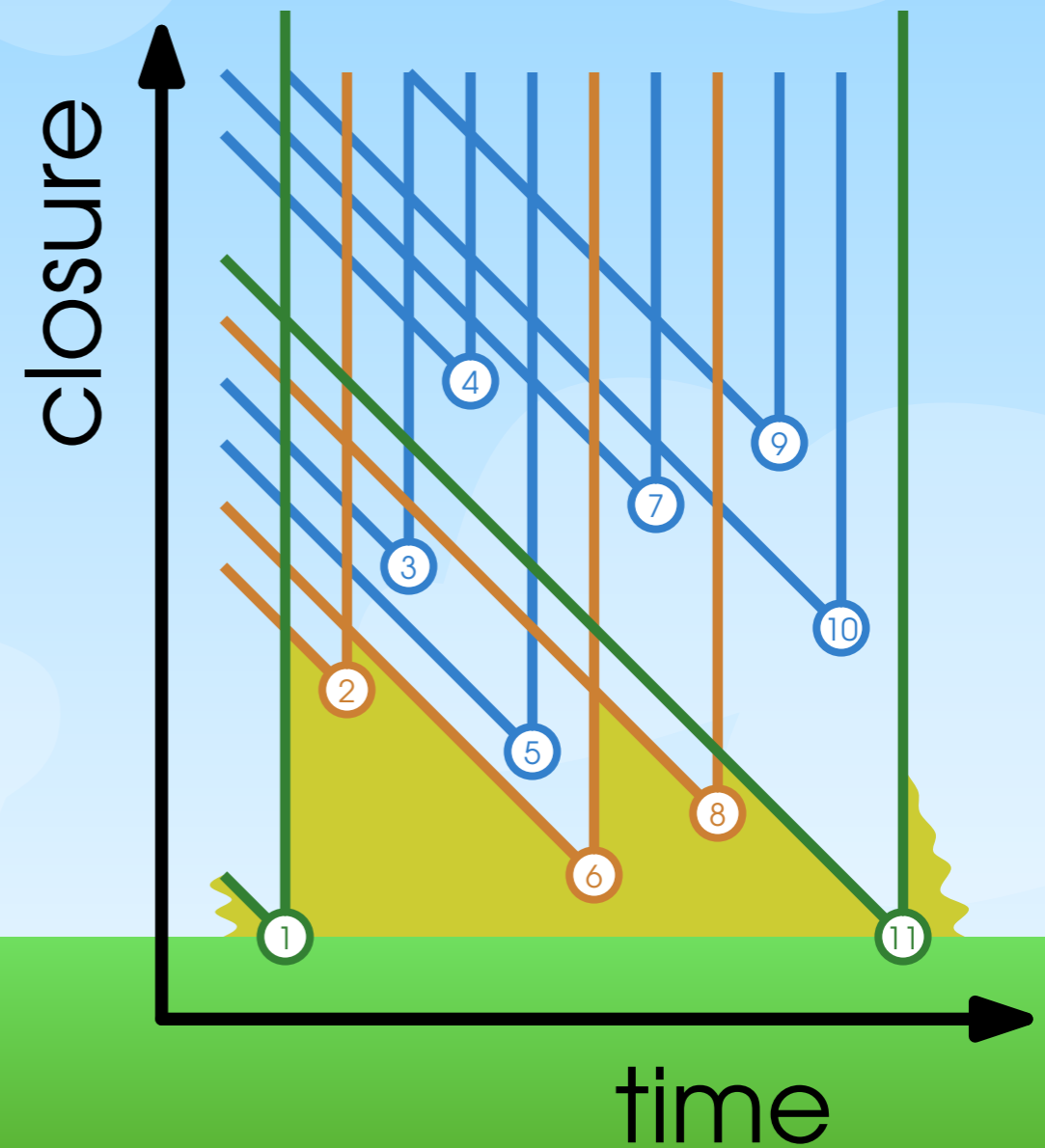
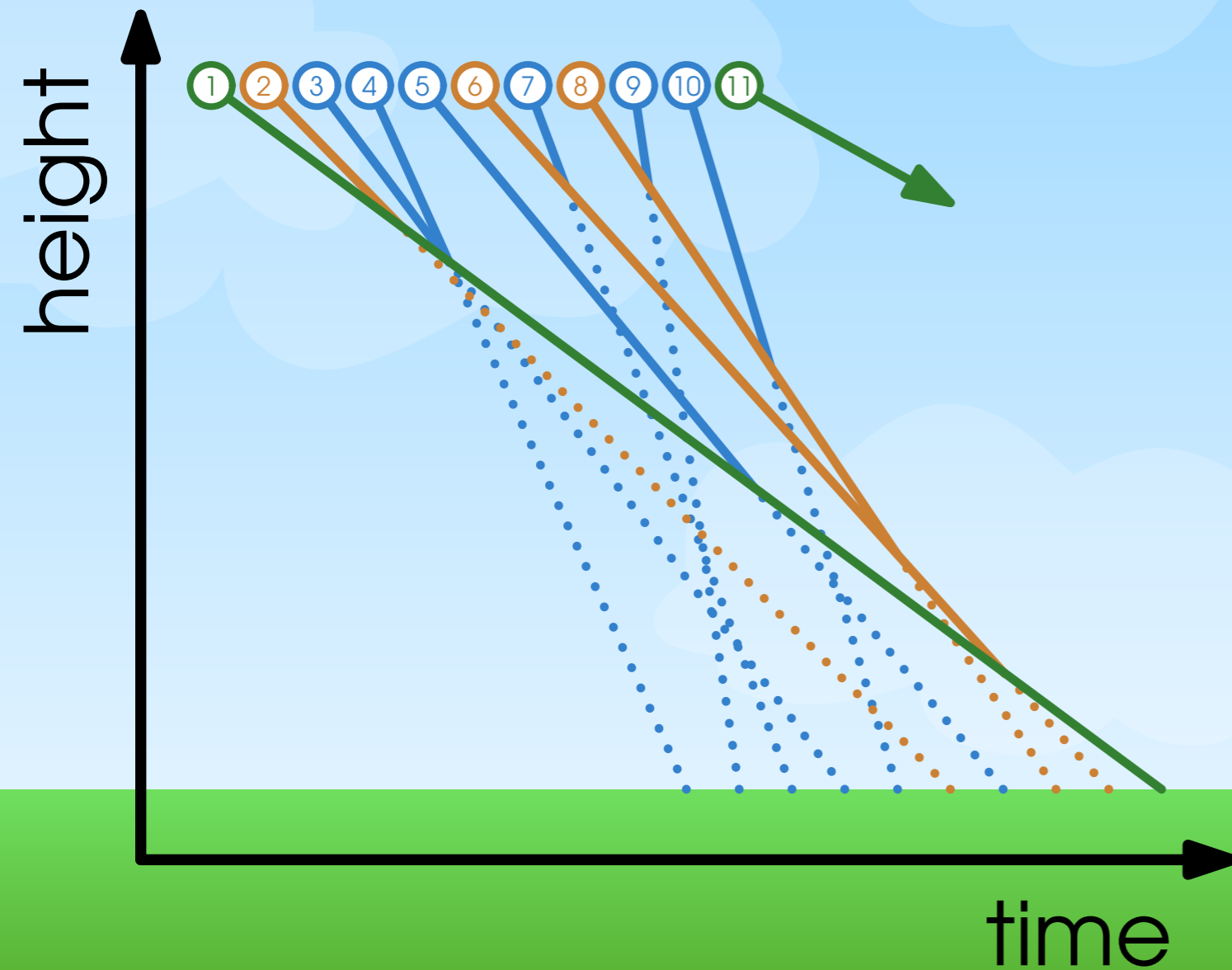
THE XMAS DIAGRAM



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THE NEW THEOREM

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“We can build a data structure that reports, given T , the largest L for which there is no delay in $O(\log n)$ time.”

THE CONCLUSION

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“We can accommodate demanding VIPs with minimal impact to the general public in polynomial time.”

THE END

