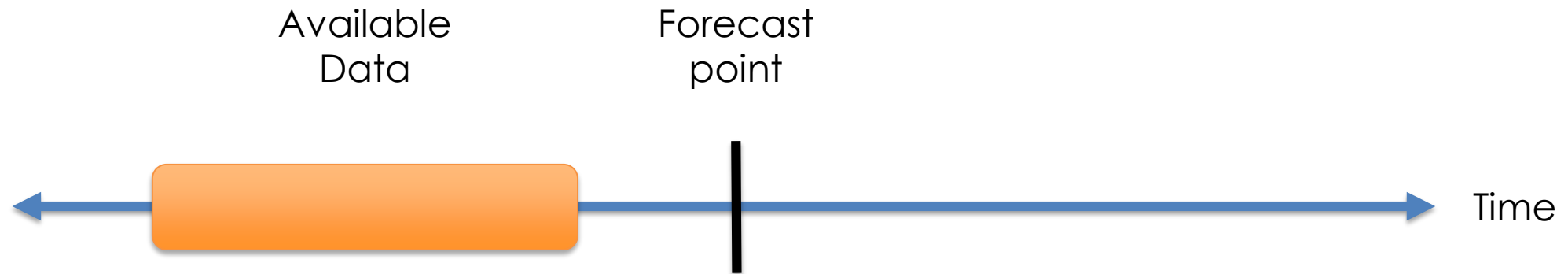


Multi-step forecasting

Strategies

Forecasting Framework: single point



- We have data up to a certain point in time.
- We want to **forecast 1 single point ahead**.
- E.g., forecast sales next day.

Single-point forecasting

Time	Sales (UK)	
2020-02-12	35	
2020-02-13	30	
2020-02-14	23	⋮
2020-02-15	21	
2020-02-16	40	$t - 2$
2020-02-17	31	$t - 1$
2020-02-18	?	t

Forecasting Framework: multiple points

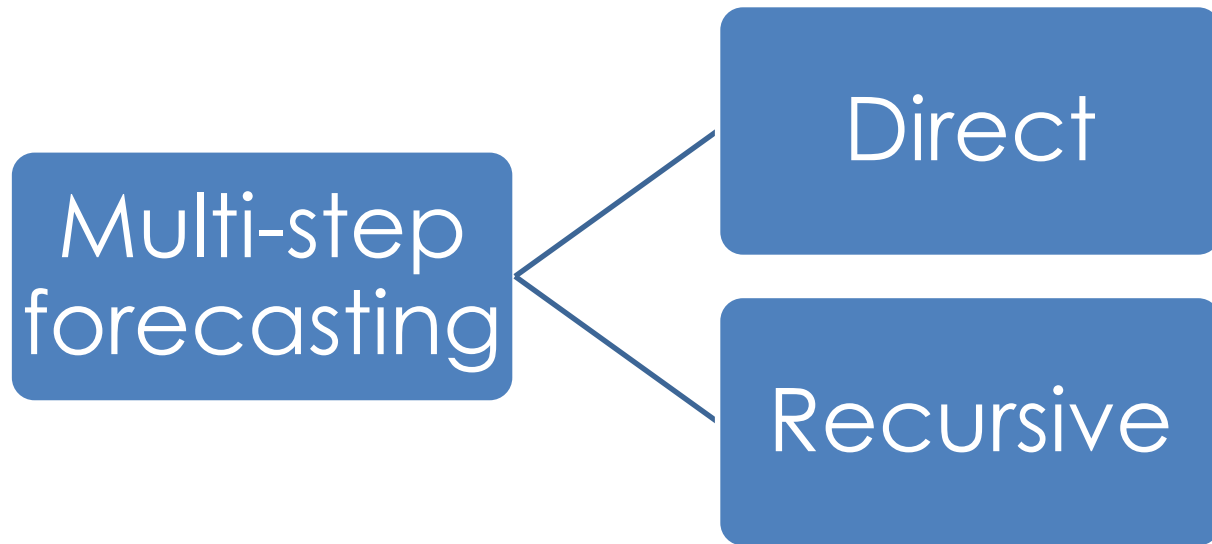


- We have data up to a certain point in time.
- We want to **forecast various points ahead**.
- E.g., forecast daily sales in the next 3 days.

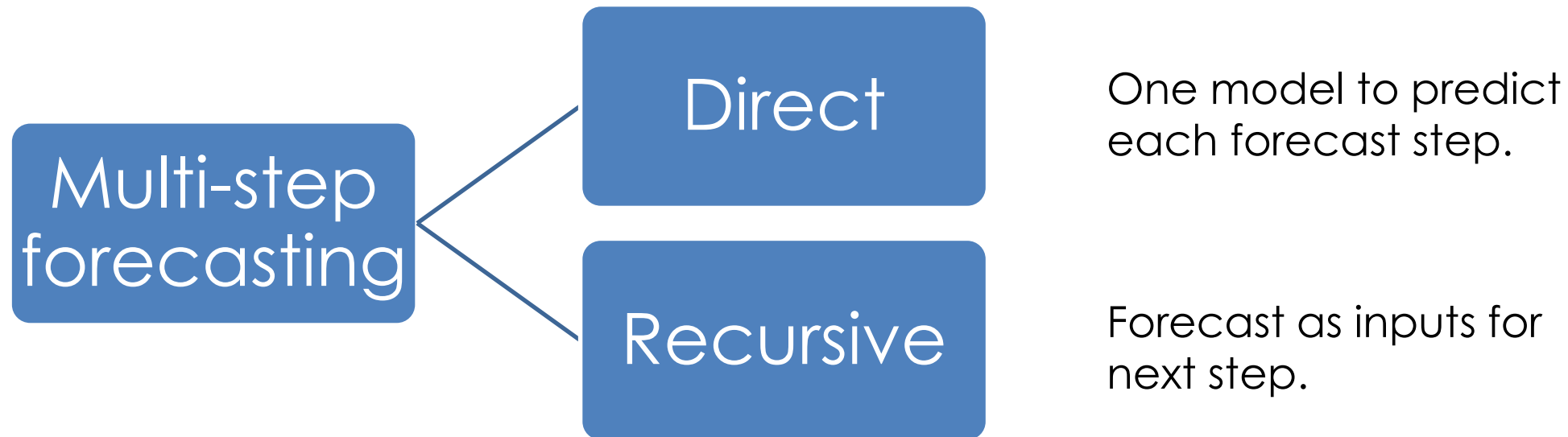
Multi-step forecasting

Time	Sales (UK)	
2020-02-12	35	
2020-02-13	30	
2020-02-14	23	⋮
2020-02-15	21	
2020-02-16	40	$t - 2$
2020-02-17	31	$t - 1$
2020-02-18	?	t
2022-02-19	?	$t + 1$
2022-02-20	?	$t + 2$

Multi-step forecasting approaches



Multi-step forecasting approaches



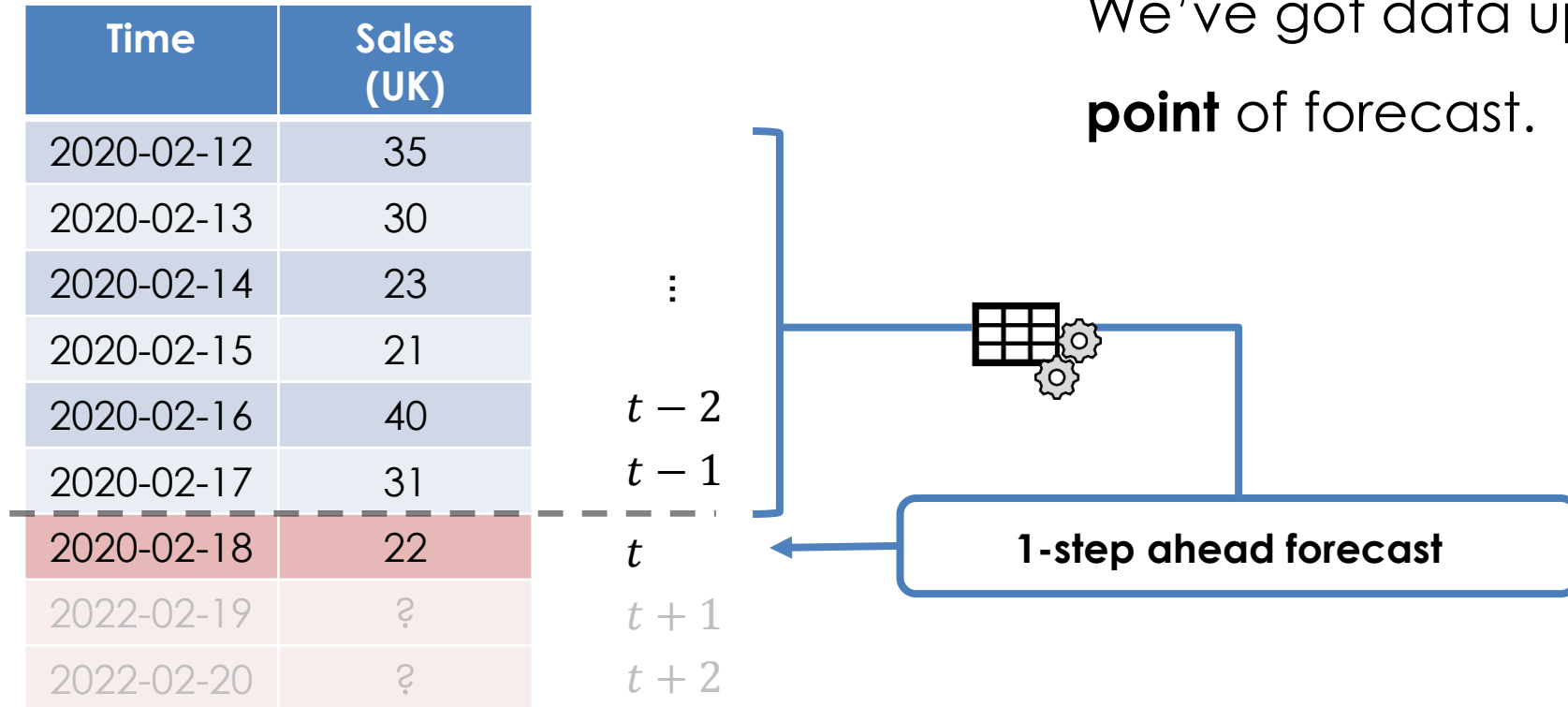
Multi-step forecasting

We want to predict / forecast
multiple steps ahead.

Time	Sales (UK)	
2020-02-12	35	
2020-02-13	30	
2020-02-14	23	⋮
2020-02-15	21	
2020-02-16	40	$t - 2$
2020-02-17	31	$t - 1$
2020-02-18	?	t
2022-02-19	?	$t + 1$
2022-02-20	?	$t + 2$

Available data

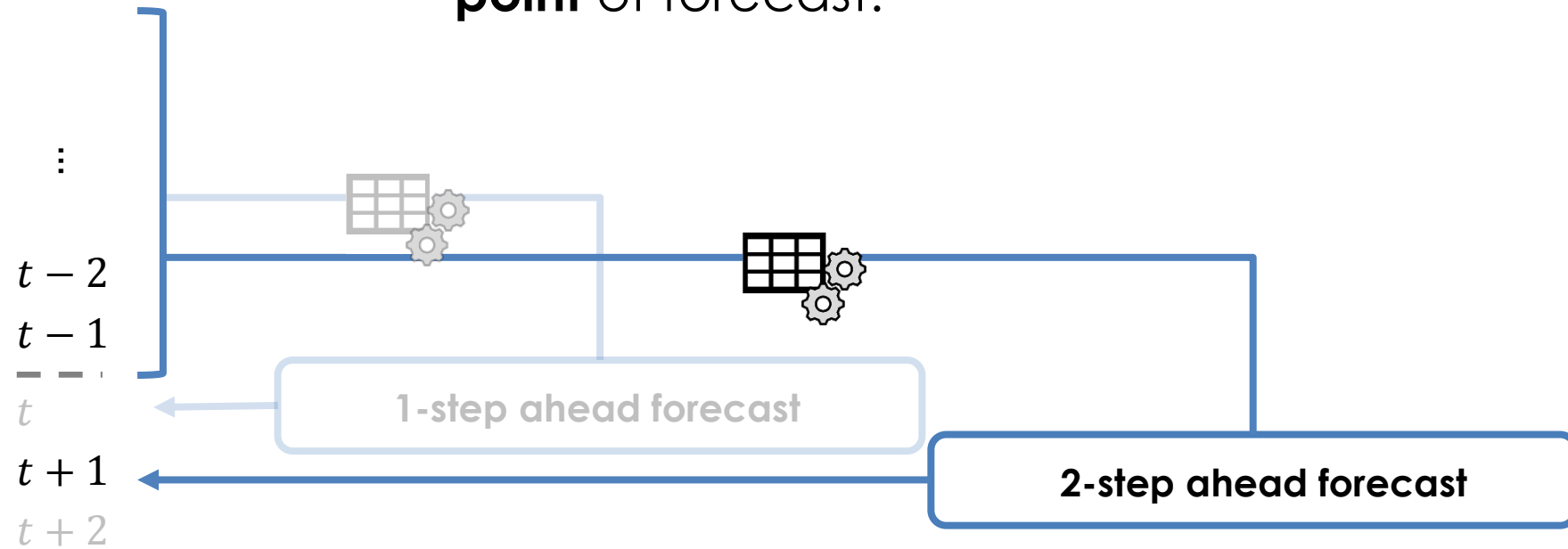
We've got data up to the **first point** of forecast.



Available data

Time	Sales (UK)
2020-02-12	35
2020-02-13	30
2020-02-14	23
2020-02-15	21
2020-02-16	40
2020-02-17	31
<hr/>	
2020-02-18	22
2022-02-19	30
2022-02-20	?

We've got data up to the **first point** of forecast.



Summary

Predict multiple steps in the future.

Two strategies: recursive and direct.

Data available up to first forecast point.