Problem Formulation
Notation

- Core idea of few-shot learning is to use episodic classification paradigm to simulate few-shot settings during model training.

- $\mathscr{E}$: set of news event, $e \in \mathscr{E}$: news event (which has a few labeled posts)

- In each episode during training stage, the labeled posts are partitioned into two independent sets:

  - Support set: $\left\{ \mathbf{X}_e^s, \mathbf{Y}_e^s \right\} = \left\{ x_{e,i}^s, y_{e,i}^s \right\}_{i=1}^{K}$, Query set: $\left\{ \mathbf{X}_e^q, \mathbf{Y}_e^q \right\} = \left\{ x_{e,i}^q, y_{e,i}^q \right\}_{i=K+1}^{N}$

- For each event e, the model leverages its corresponding K labeled posts as support set to conduct fake news detection on given event e.

Preliminary Work

Meta-Learning

Meta Learning

Machine Learning ≈ 根據資料找一個函數 f 的能力

$$f(\text{🐱}) = \text{"Cat"}$$

Meta Learning

≈ 根據資料找一個找一個函數 f 的函數 F 的能力

$$F(\quad) = f^*$$

cat   dog   cat   dog

Training Data