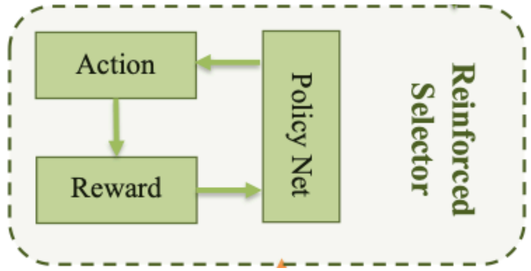
Methodology

Data Selection via Reinforcement Learning - *Reward*



- For k-th bag data $\left\{ x_i^{(k)} \right\}_{i=1}^{B}$, aim to maximize the expected total reward
- Since the scale of R_k is small use the summation of reward to define the objective function:
  - $J\left(\theta_s\right) = \sum_{i=1}^{B} \pi_{\theta_s}\left(s_i^{(k)}, a_i^{(k)}\right) R_k$

Methodology

Reinforced Weakly-supervised Fake News Detection Framework

- First, pre-train the annotator using the labeled report data $\{R, Y\}$ and assign weak labels $\hat{Y}^u$ to the unlabeled news set X^u
- The proposed reinforced selector will select high-quality samples $\{X_s, Y_s\} = \left\{ X_s^{(k)}, Y_s^{(k)} \right\}_{k=1}^{K}$ from the weakly labeled dataset $\{X^u, \hat{Y}^u\}$
- Then both selected dataset $\{X_s, Y_s\}$ and original labeled data $\{X, Y\}$ are fed into the fake news detector for training.