



# Social Emotion Classification via Reader Perspective Weighted Model

Xin Li, Yanghui Rao\*, Yanjia Chen, Xuebo Liu and Huan Huang  
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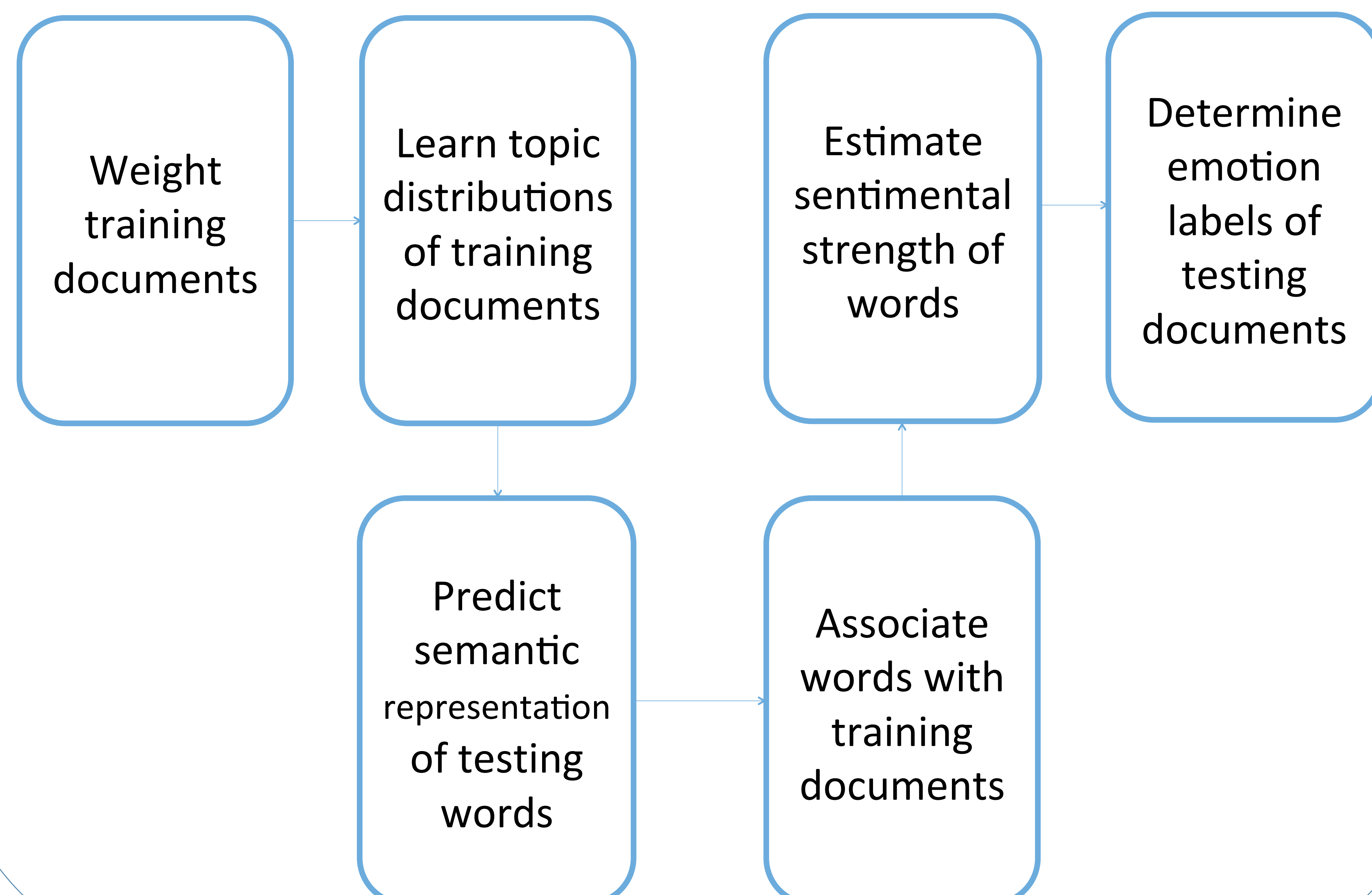
## Target

Automatically classify news documents based on the semantic information and emotional votes of readers

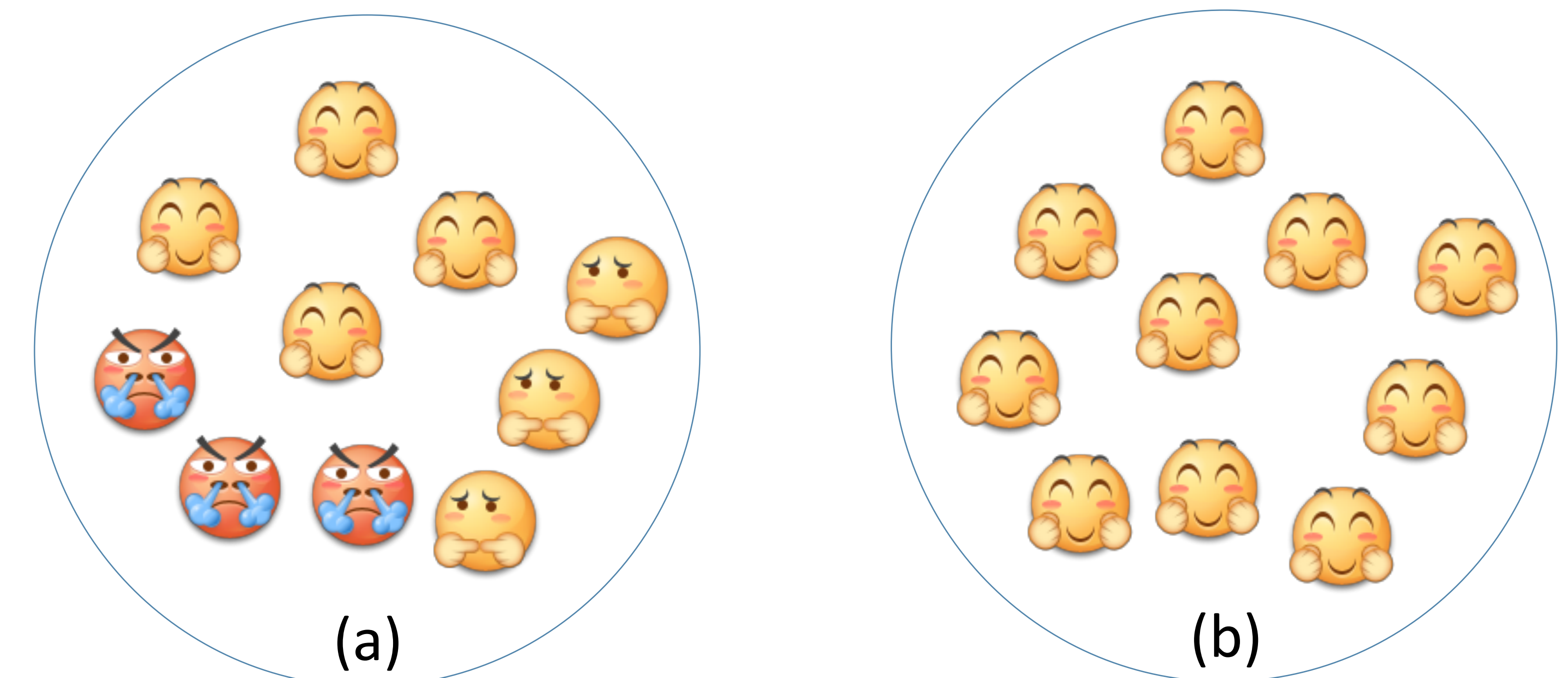
## Contribution

1. Propose the **emotional entropy** to filter noisy samples
2. Associate words with emotions via **topic distributions**
3. **Bayesian-based** sentiment inference

## System Process



## Entropy-based Weighting Schema



In terms of the **Majority Voting**, they both toward 😊

According to the fine-grained rating distribution, the sentimental polarity of (b) is stronger than that of (a) since all readers vote over one single emotion, i.e., 😊

We propose the concept of **Emotional Entropy** to measure the uncertainty / purity of reader ratings

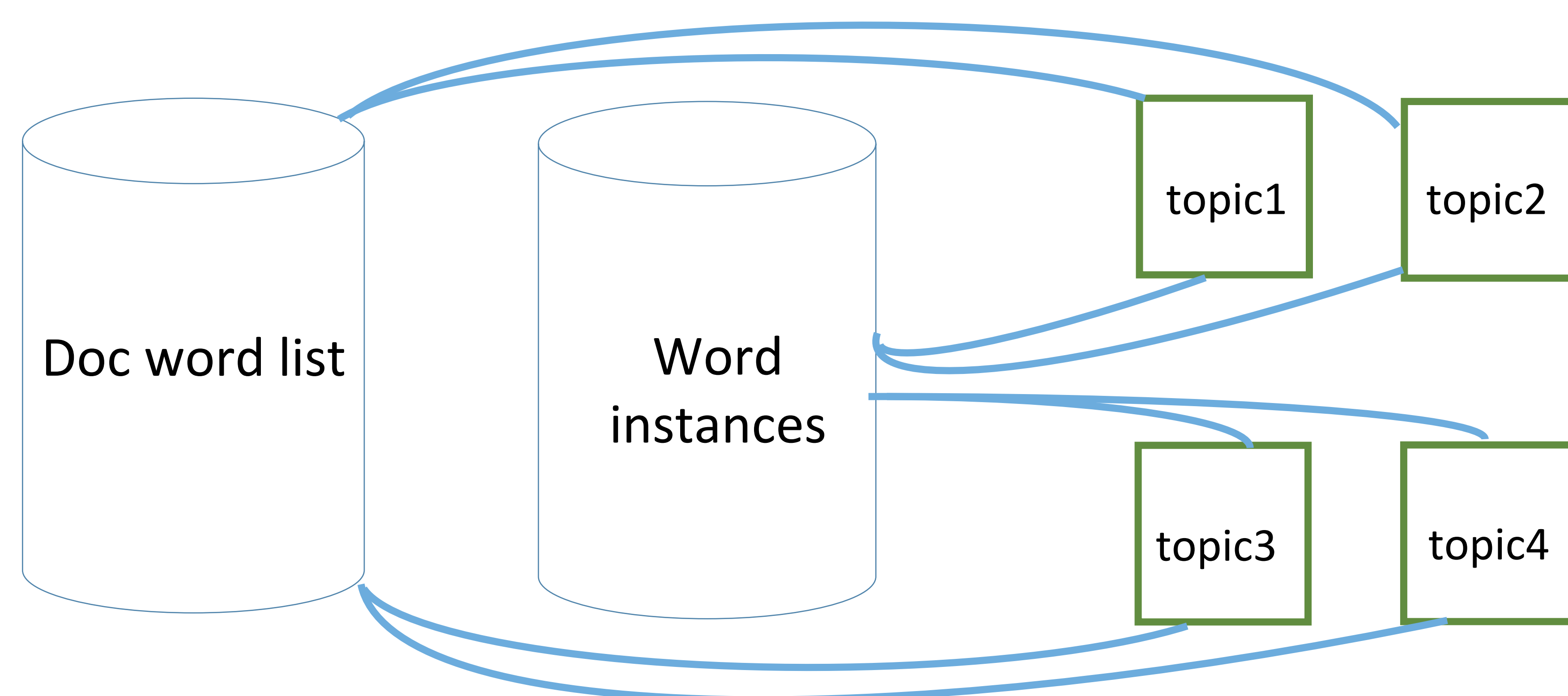
Training documents with larger **Emotional Entropy** values are more likely to be noisy samples, since they may contain few discriminative words or topics, and are difficult to be distinguished even for readers



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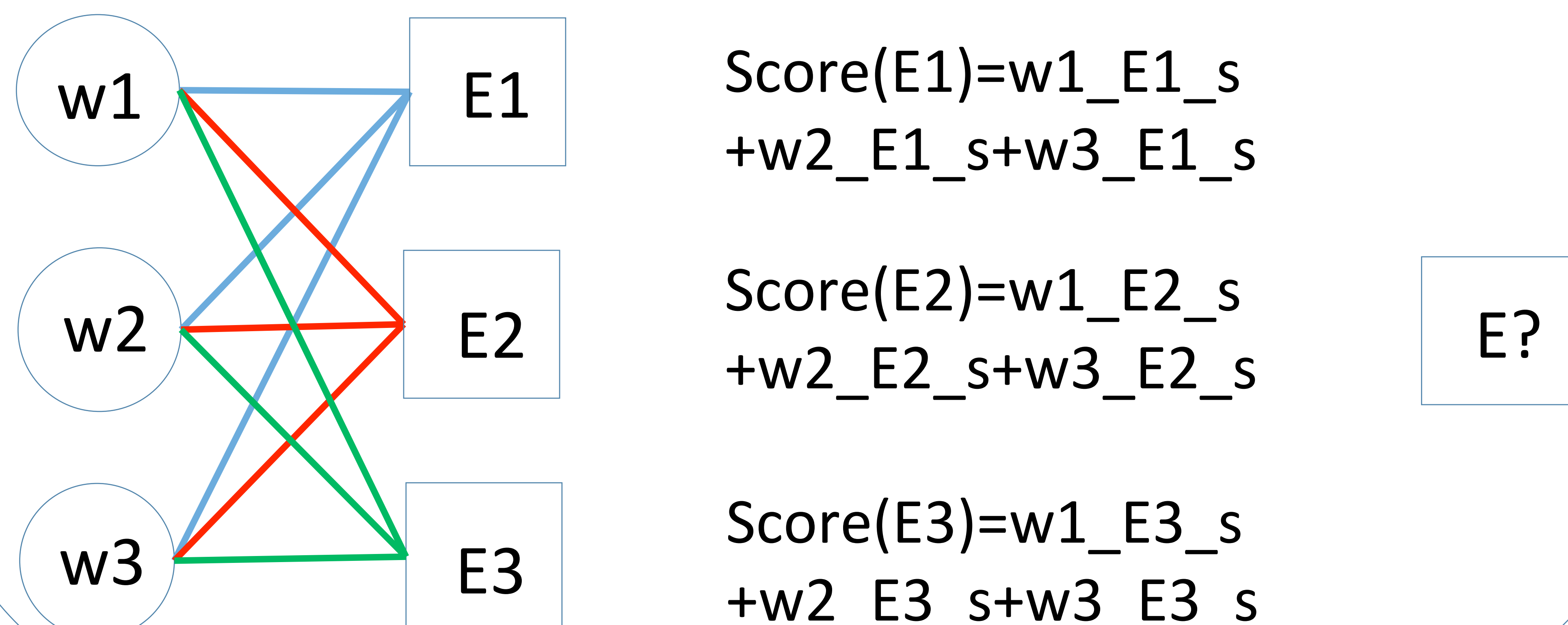
## Associate Words With Emotions



We compute the **senti-strength** between words and training documents based on topic distributions

Weight the **senti-strength** based on the **Emotional Entropy** of the corresponding document

## Sentiment Determination



## Sentiment Determination

We utilize the **unigram** language model and neglect word orders. Bayesian inference is used to calculate **senti-scores**

Emotion with the highest **senti-score** will be output as the label of testing documents

## Experimental Results

Models	SemEval	SinaNews
SWAT [2007]	31.40%	50.63%
ET [2012]	31.00%	42.91%
ETM [2012]	24.65%	52.90%
MSTM [2014]	20.80%	49.83%
SLTM [2014]	20.85%	49.50%
ATM [2014]	32.45%	49.58%
<b>RPWM</b>	<b>36.47%</b>	<b>56.12%</b>

## Conclusion

1. Emotional entropy reduces the disturbance of noisy documents (i.e., documents which are difficult for readers or models to distinguish their emotions)
2. Topic distribution acts as a bridge between training documents and words in the testing documents