

Semi-supervised Sentiment and Basic Emotion Transferring for Emotion Classification Improvement

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Project Idea

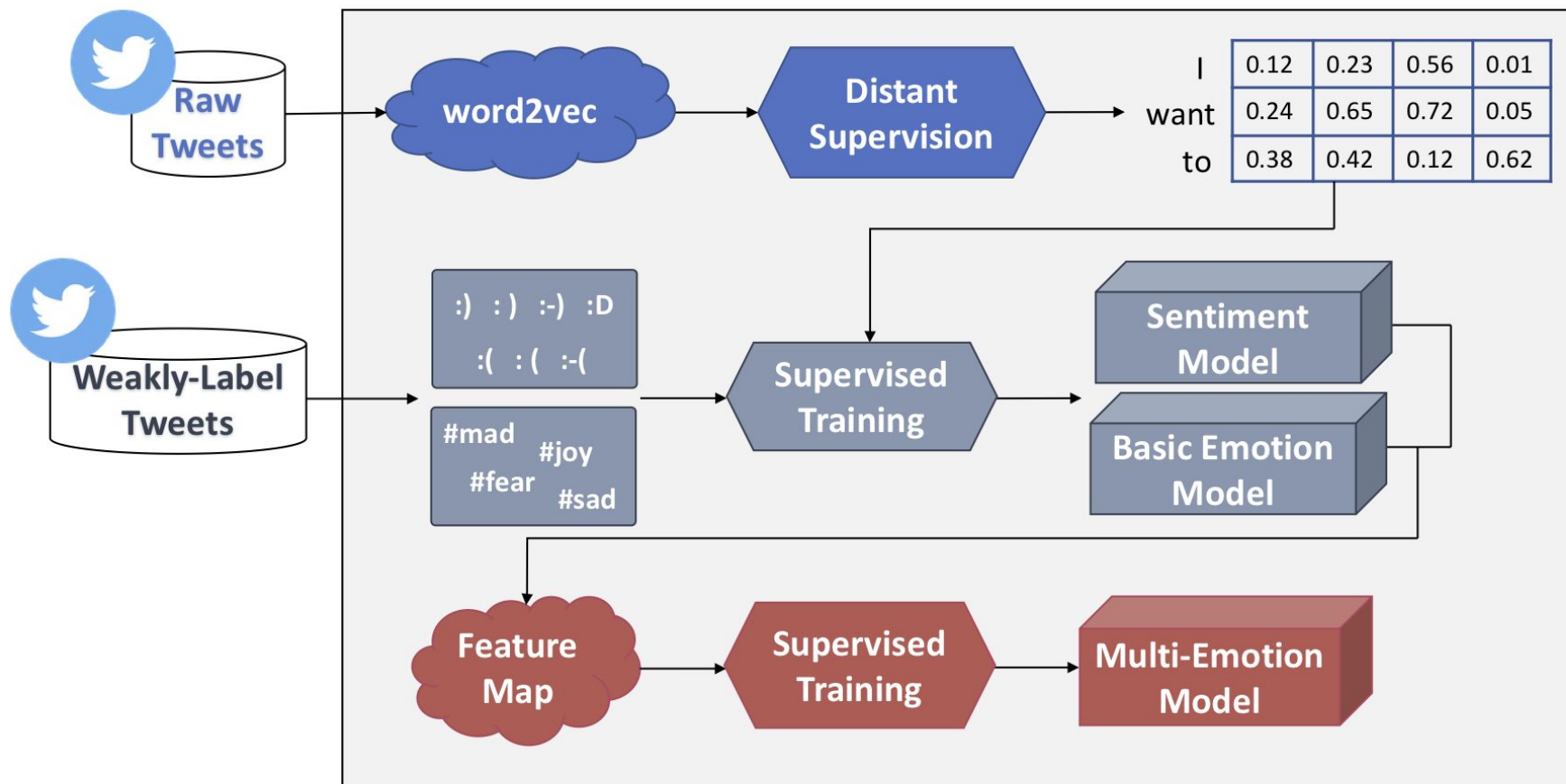
- Sentiment Analysis
 - Positive, neutral and negative
- Emotion Detection
 - Joy, sadness, anger, disgust ...



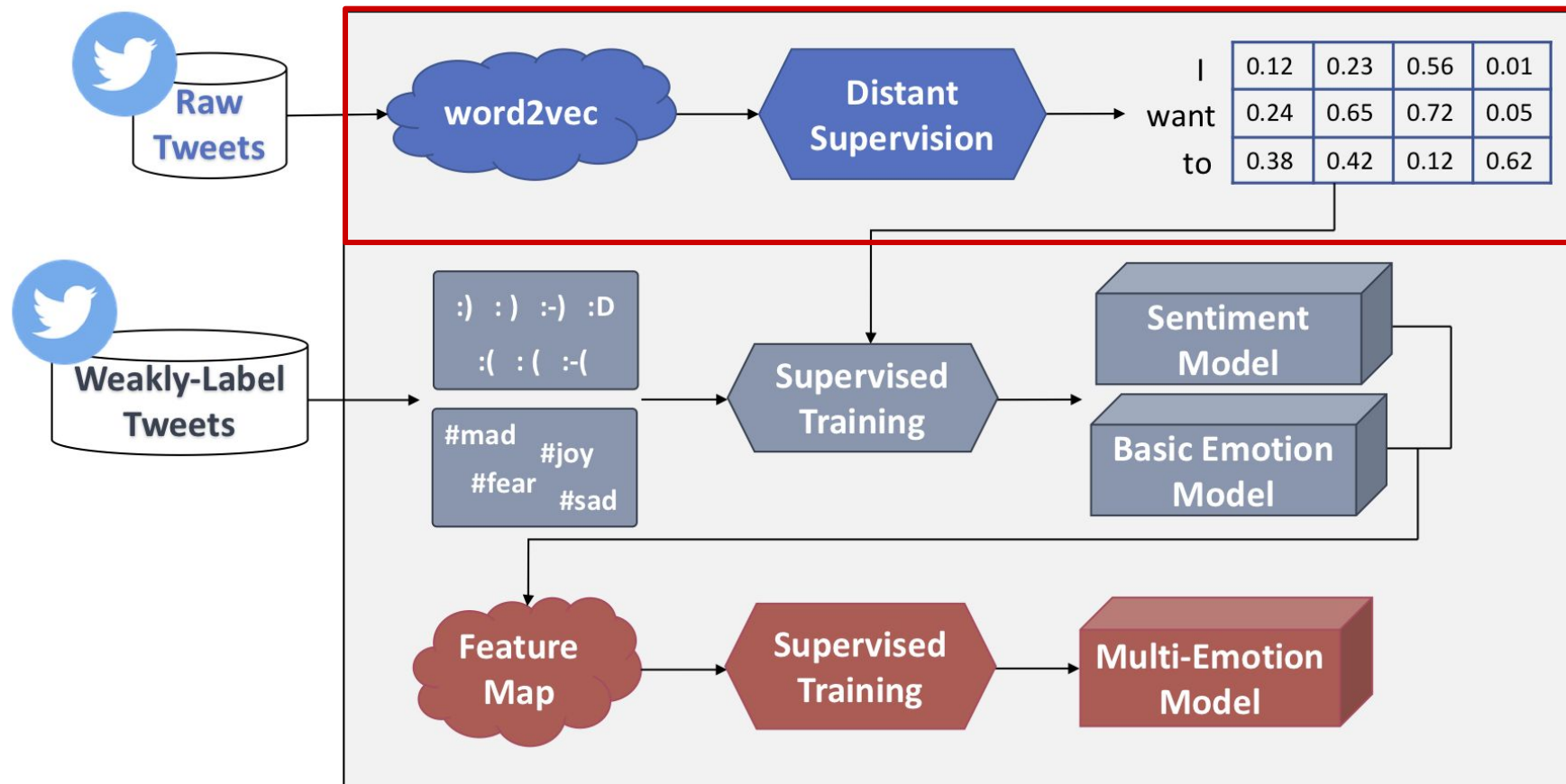
“Complex/advance emotions
are the **combination** of
basic emotions”



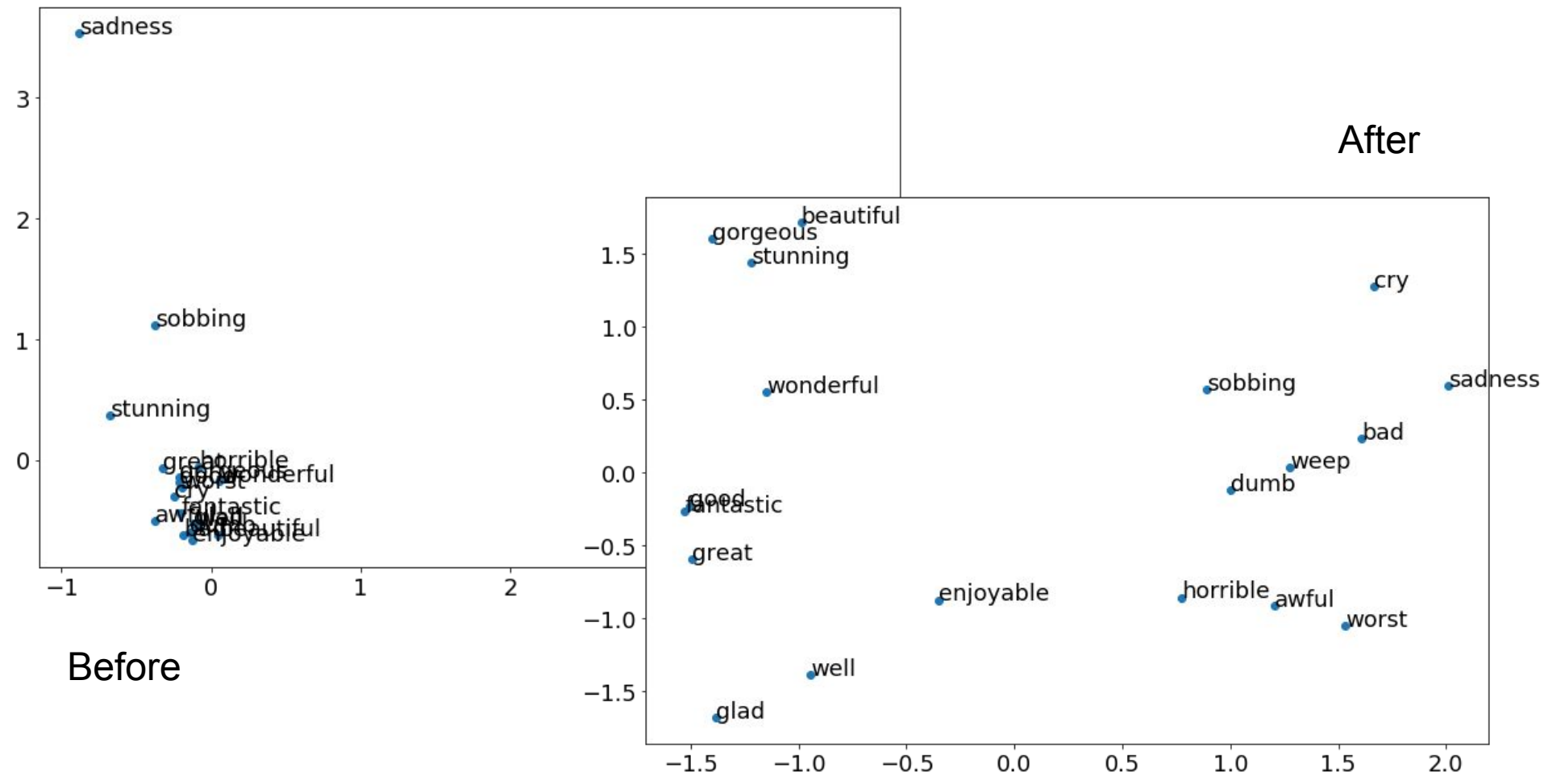
Training Phases



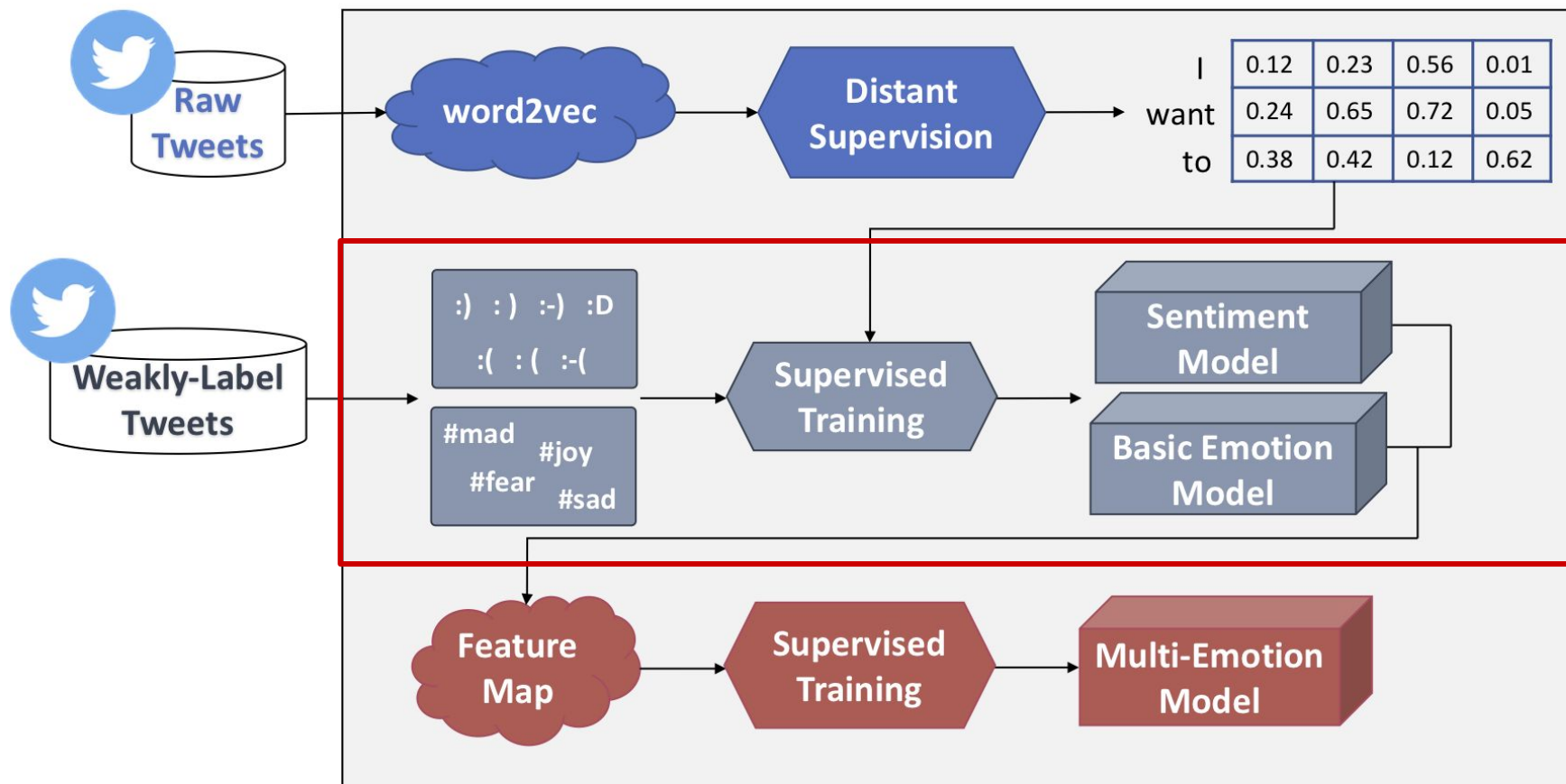
Training Phases



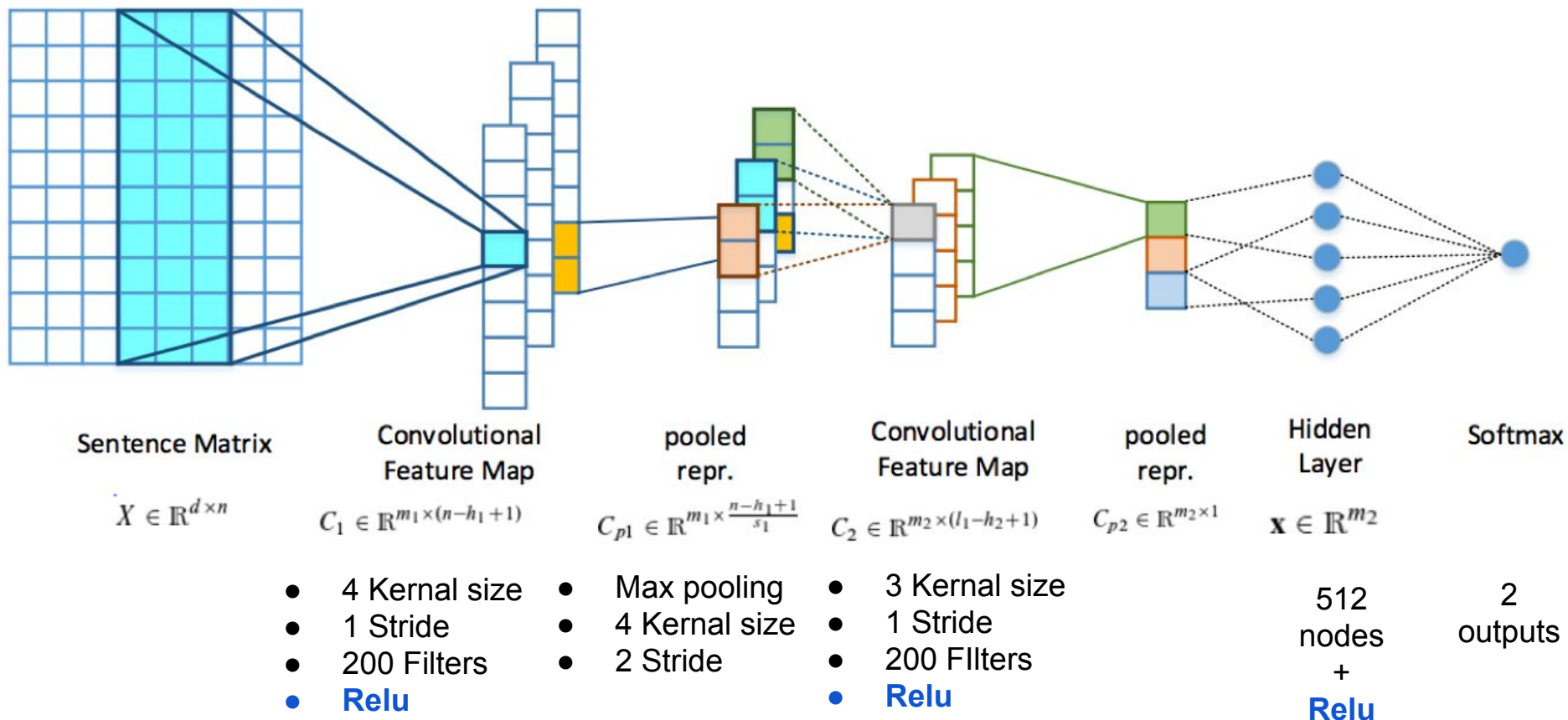
Distant Supervision - 200 Dims Word2Vec



Training Phases

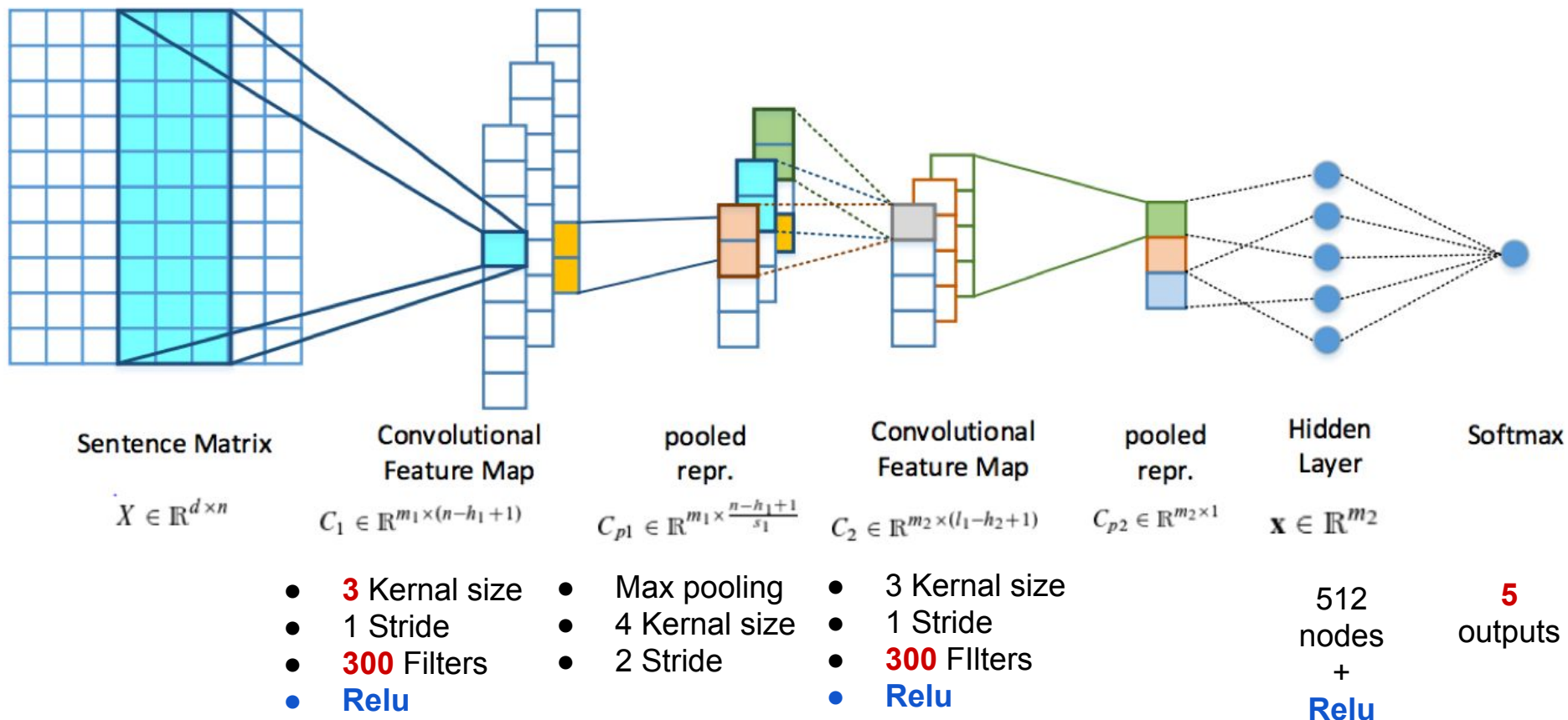


Network Structure - Sentiment Supervised



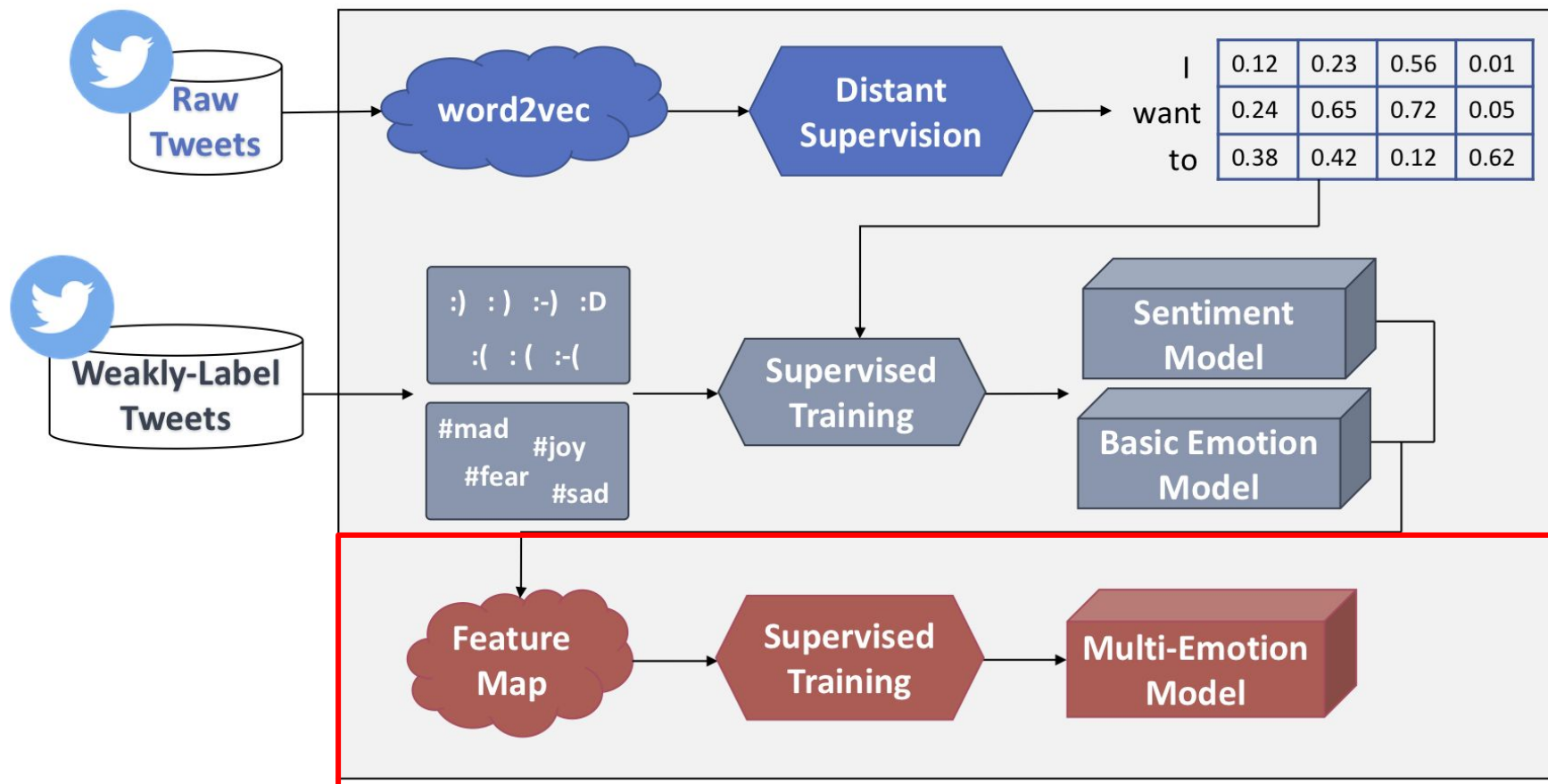
Optimizer: AdaDelta

Network Structure - Emotion Supervised

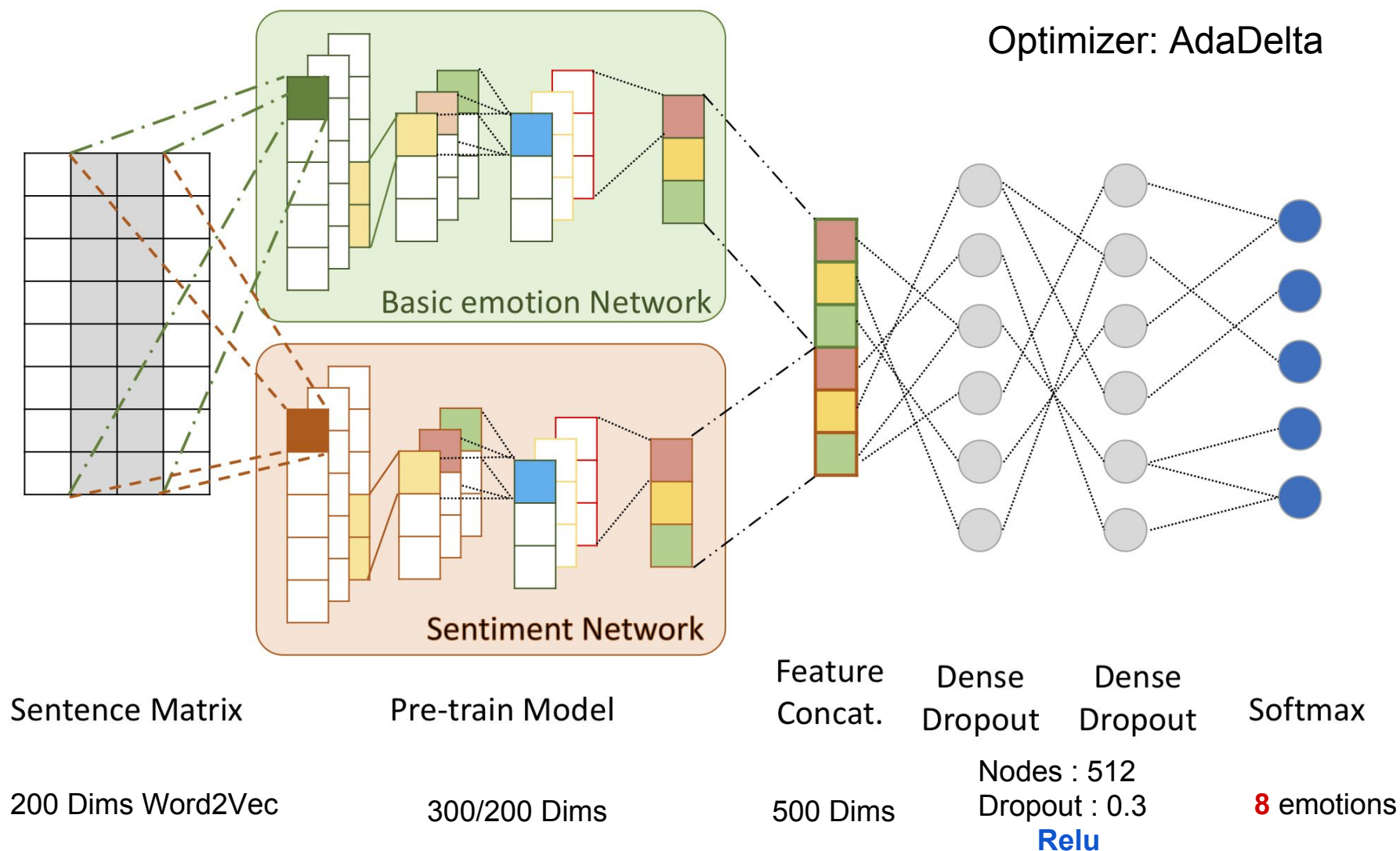


Optimizer: AdaDelta

Training Phases



Network Structure - Transferring Model



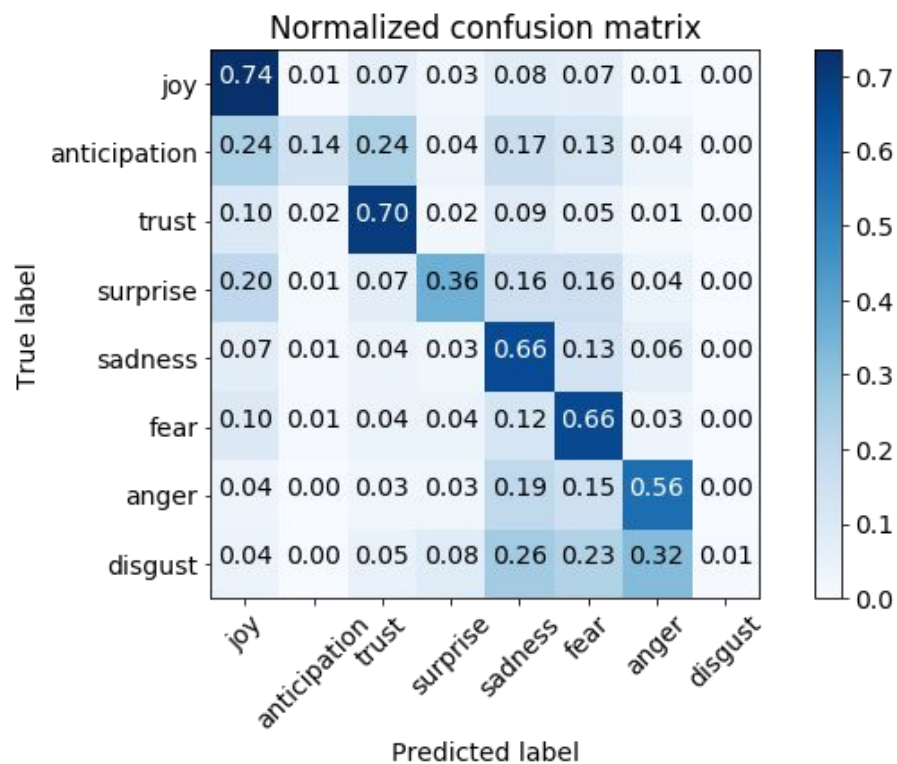
Dataset Guide

- Word embeddings
 - Trained with word2vec
 - 200 dimensions
- Weakly labeled tweets
 - Twitter streaming api

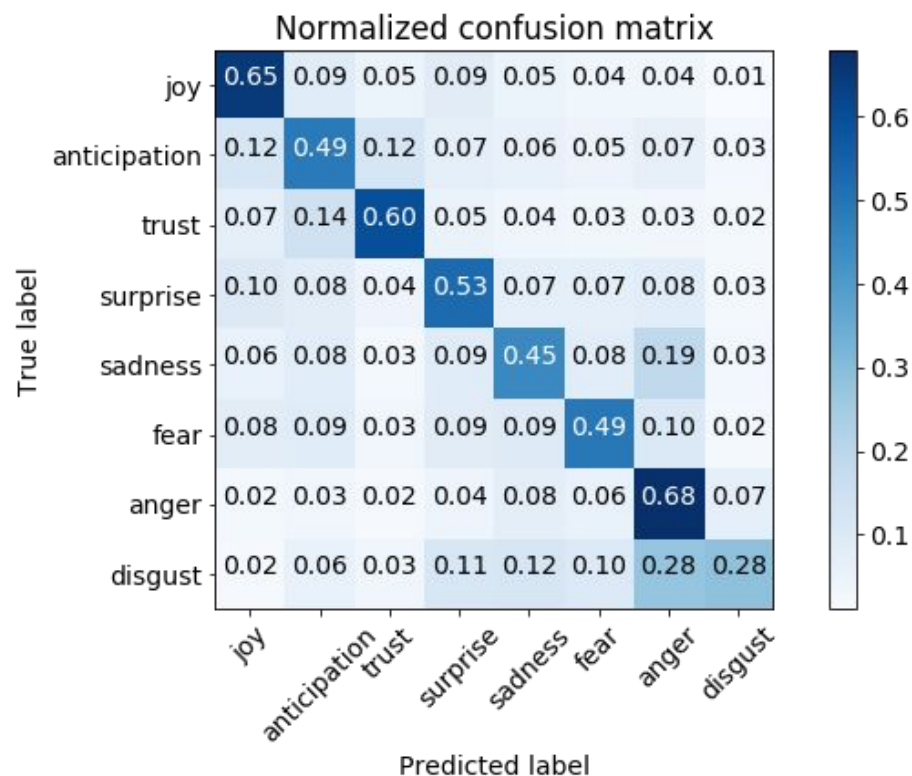
Dataset	Hashtags
Anger	#insulted, #irritated, #mad, #pissed ...
Anticipation	#pumped, #ready, #vigilance ...
Disgust	#awful, #shame, #lame, #nauseous ...
Fear	#suspicious, #fear, #worried, #unsure ...
Joy	#awesome, #delighted, #happy, #joy ...
Sadness	#sadness, #gried, #helpless, #reget ...
Surprise	#strange, #surprise, #weird, # surprised ...
Trust	#motivated, #optimistic, #safe, #trust,...

Dataset	Anger	Anticipation	Disgust	Fear	Joy	Sadness	Surprise	Trust
Original	454K	198K	30K	632K	711K	770K	301K	491K
Cleaned	332K	86K	18K	352K	351K	440K	166K	221K

Result - Balanced Batch Sampling



Mini batch



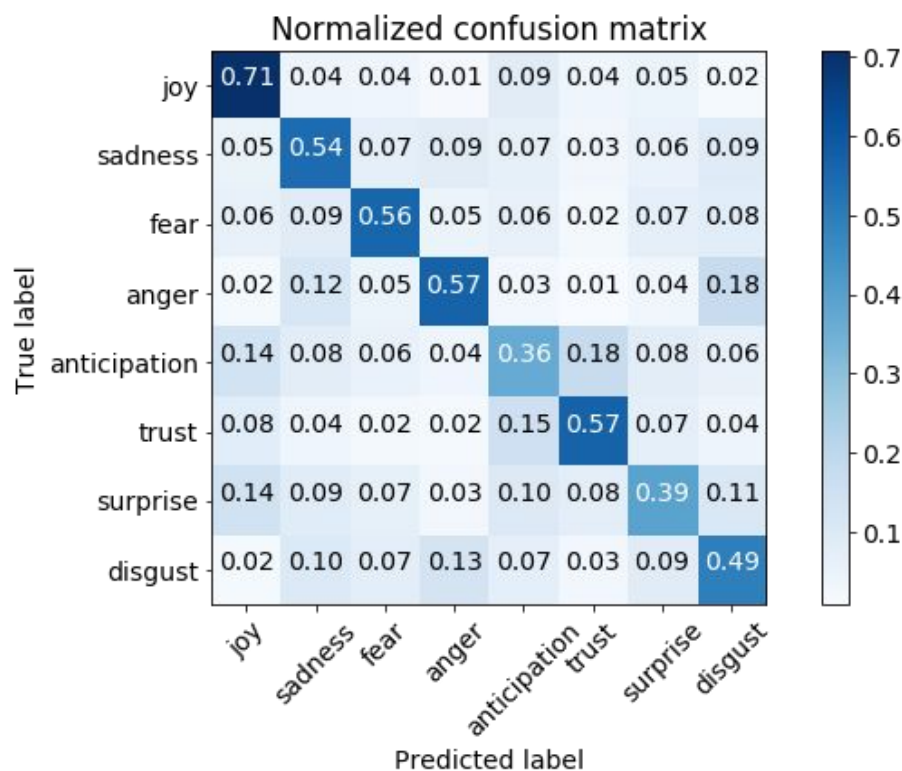
Balanced batch sampling

Result - Transferring Model

Improvement

- Accuracy 0.513 -> 0.524
- F1 score 0.514 -> 0.525
- Top2 Accuracy 0.698 -> 0.724

	precision	recall	f1-score	support
joy	0.59	0.71	0.65	1928
sadness	0.53	0.51	0.52	1800
fear	0.57	0.59	0.58	1800
anger	0.57	0.60	0.59	1672
anticipation	0.40	0.36	0.38	1800
trust	0.61	0.57	0.59	1800
surprise	0.45	0.42	0.43	1800
disgust	0.47	0.48	0.48	1800
avg / total	0.53	0.53	0.53	14400



Result (Con'd) - Transferring Model

